

BIOGRAPHICAL SKETCH

NAME: Femi Adeshina

POSITION TITLE: Toxicologist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Columbia University, New York, NY	B.S.	1974-1979	Biology/Chemistry
University of Texas, Dallas, TX	M.S.	1985-1986	Environmental Science
University of Texas, Dallas, TX	Ph.D.	1986-1988	Environmental Science

PROFESSIONAL EXPERIENCE:

Senior Toxicologist NCEA, ORD, EPA	2002 - Present
Staff Toxicologist and Team Leader, NCEA, ORD, EPA	1997-2002
President and Principal Consultant Environmental & Scientific Consultants, Cherry Hill, NJ	1995- 1997
Regional Director of Risk Assessment Services Golder Associates, Mt. Laurel, NJ	1992 - 1995
Senior Toxicologist IT Corporation, Pittsburgh, PA	1989 - 1992

SELECTED AWARDS AND HONORS:

Recipient: ORD Superior Accomplishment Recognition Award for special assistance to OPP in developing Science Position for litigation settlement with NRDC 2001

INVITED LECTURES/SYMPOSIA (Selected presentations):

1. Assessment of Toxicity Data for Developing Environmental Regulations
Plenary Speaker at the U.S. EPA and Tri-Services Toxicology and Risk Assessment Conference, Dayton, OH (2003)
1. Exposure to Pesticide Mixtures: Age-Related Immunotoxic Risk
Seminar presented at OPPTS/ORD Seminar Series, Washington, DC (2003)
2. Cumulative Risk Assessment: A Discussion of Current Approaches
Lecture presented at University of Cincinnati, Department of Environmental Health, Cincinnati, OH (2002)
3. Cumulative Risk Assessment Practice and Case Studies at NCEA
Seminar presented to U.S. EPA Science Advisory Board, Cincinnati, OH (2001)
4. Metrics for Toxicity Evaluation and Cumulative Risk Assessment
Seminar presented at NCEA Seminar Series, Cincinnati, OH (2000)
5. Approaches for Characterizing Health Risk at Wastes Sites
Tutorial presented at University of Cincinnati, College of Engineering, Cincinnati, OH (2000)
7. Preliminary Development of a Mechanistic Approach for Age-Related Health Risk Assessment. Interactions and Mechanisms of Pesticide Mixtures and Age-Related Risk
Seminar presented to NCEA Scientific Review Panel, Cincinnati, OH (1999)

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Co-chair, Session on Biomarkers: Emerging Issues and Applications. 2003. U.S. EPA and Tri-Services Toxicology and Risk Assessment Conference, Dayton, OH.

Co-chair, Session on Chemical Mixtures Risk Assessment; Current Approaches and Emerging Issues. 2001. U.S. EPA and Tri-Services Toxicology and Risk Assessment Conference, Dayton, OH.

Co-chair, Workshop on History and Principles of Physiological Modeling. 2001. Ohio Society for Risk Analysis, Cincinnati, OH.

Chair, Seminar on Paths and Pitfalls in Evaluating the Groundwater to Indoor Air Exposure Pathway.

2001. Ohio Society for Risk Analysis, Cincinnati, OH.

Chair, Seminar on Impending Challenges to Risk-Based Decision Making: A View Toward Multinational Business Concerns. 2000. Ohio Society for Risk Analysis, Cincinnati, OH.

Co-chair, Seminar on International Harmonization of Approaches to Risk Assessment. 1999. Ohio Society for Risk Analysis, Cincinnati, OH.

Chair, Workshop on Topics in Ecological Risk Assessment. 1999. Ohio Society for Risk Analysis, Cincinnati, OH.

Chair, Seminar on The Precautionary Principle and Risk Assessment. 1999. Ohio Society for Risk Analysis, Cincinnati, OH.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

U.S. EPA and Tri-Service Conference on Toxicology and Risk Assessment. Co-Chair, Session on Biomarkers: Emerging Issues and Applications. April 28 – May 1, 2003. Dayton, OH.

U.S. EPA ORD/ Regional Cumulative Risk Assessment Workshop and Exposition . November 4 – 8, 2002. Dallas, TX.

Expert Panel Peer Review Workshop. Identification of Pesticides on Drinking Water CCL for Cumulative Risk Assessment Based on Common Mechanism of Toxicity. July 9 – 10, 2002. Cincinnati, OH.

PUBLICATIONS (14 selected from an overall total of 28 papers and 2 book chapters)

1. S. Ogun, R. Gogal, F. Adeshina, H. Choudhury, H. Misra. 2004. "Pesticide Mixtures Potentiate the Toxicity in Murine Thymocytes." **Toxicology** 196, 181–195
2. Adeshina, F., S. Ogun and H.P. Misra, and H. Choudhury, 2002, "Pesticide Toxicity in Thymocytes is Related to Oxidative Stress," **Toxicological Sciences**, 66 (1-S): 320.
3. Keenan, J.J., H.P. Misra, F. Adeshina, and H. Choudhury, 2002, "Immunotoxic Effects of Endosulfan and Permethrin Via Thymocytes Apoptosis," **Toxicological Sciences**, 66 (1-S): 223.
4. Misra, H.P., C.L. Rabideau, F. Adeshina, and H. Choudhury, 2002, "Oxidative Stress Induced in Murine Splenocytes After Exposure to Multiple Pesticides *In Vitro*," **Toxicological Sciences**, 66 (1-S): 91.
5. Birak, Pamela S., J.Yurk, F. Adeshina, K. Pollard, M. Lorber, S. Kroner, H. Choudhury. 2001. "Travis and Arms Revisited: A Second Look at a Widely Used Bioconcentration Algorithm." **Toxicology and Industrial Health**, Vol. 17, pp. 163-175.
6. Misra, H.P., C.L. Rabideau, F. Adeshina, and H. Choudhury, 2001, "Exposure to Pesticide Mixtures Induces Immunotoxicity via Apoptosis: Role of Reactive Oxygen Species (ROS)." **Proceedings of the International Conference on Natural Antioxidants and Free Radicals in Human Health & Radiation Biology**, International Society for Free Radical Research, Mumbai, India, July 21-24.
7. Rice, G., E.B. Roberts, F. Adeshina, and V. Kier, 2001, "Assessing Risks from Incineration and Combustion Sources," In: **Environmental Health Secrets**, L.K. Williams, R.L. Langley, Eds. Hanley & Belfus Publishers, Philadelphia, PA. pp. 72-78.
8. Adeshina, F. and S.S. Kueberuwa, 1999, "Endocrine Disruption, Organochlorine Pesticides, and Human Development: An Overview," In: **Environmental Toxicology and Risk Assessment: Standardization of Biomarkers for Endocrine Disruption and Environmental Assessment, 8th Volume ASTM STP 1364**, D.S. Henshel, M.C. Black, M.C. Harrass, Eds. West Conshohocken, PA. pp. 271- 285.
9. Adeshina, F. and E.L. Todd, 1991, "Application of Biological Data in Cancer Risk Estimations of Chlordane and Heptachlor," **Regulatory Toxicology and Pharmacology**, Vol. 14, pp. 59-77.
10. Adeshina, F. and E.L. Todd, 1991, "Exposure Assessment of Chlorinated Pesticides in the Environment," **Environment Science and Health**, Vol. A26, No. 1, pp. 139-153.
11. Adeshina, F. and E.L. Todd, 1990, "Organochlorine Compounds in Human Adipose Tissue from North Texas," **Toxicology and Environmental Health**, Vol. 29, pp. 147-156.

BIOGRAPHICAL SKETCH

NAME: James W. Allen

POSITION TITLE: Research Biologist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Maryland, College Park, MD	BS	1967	Zoology
Northeastern University, Boston, MA	MS	1971	Biology
University of Pittsburgh, Pittsburgh, PA	PhD	1974	Human Genetics

PROFESSIONAL EXPERIENCE:

Research Biologist, Cellular Toxicology Branch, Environ. Carcinogenesis Division, NHEERL, U.S. EPA, Research Triangle Park, NC	1995-Present
Research Biologist, Genotoxicity and Cellular Toxicology Branch, Genetic Toxicology Division, NHEERL, U.S. EPA, Research Triangle Park, NC	1980-1995
Adjunct Associate Professor, Integrated Toxicology Program, Duke University, Durham, NC	1992-Present
Adjunct Associate Professor, Curriculum in Toxicology, The University of North Carolina, Chapel Hill, NC	1986-Present
Senior Staff Fellow, National Institute of Environmental Health Sciences, Research Triangle Park, NC	1977-1980
Research Fellow, Harvard Medical School and Children's Hospital Medical Center, Boston, MA	1975-1977

PROFESSIONAL SOCIETIES:

Environmental Mutagen Society (Councilor, 1986-1989 and 1994-1997)
Genetics and Environmental Mutagenesis Society
American Association for Cancer Research
Reproductive Biology Consortium
Applied Research Ethics National Association

SELECTED AWARDS AND HONORS:

Recipient of EPA Science and Technologic Achievement Award, 1997
NHEERL Award for Exceptional Leadership of Institutional Animal Care and Use Committee, 2001
NHEERL Laboratory Director's Special Recognition Award (IACUC; AAALAC, Int. Recertification), 2002.

INVITED LECTURES/SYMPOSIA:

Presentation on Regulations and Guidelines for Using Animals in Toxicology Research, Environmental Mutagen Society Meeting, San Diego, CA, 2001
Presentation on Regulations and Guidelines for Using Animals in Toxicological Research, International Conference on Environmental Mutagens, San Francisco, CA, 2005
Lectures in Cytogenetic Toxicology, University of North Carolina, Chapel Hill, NC, 1999-2003
Lectures in Genetic Toxicology, Duke University, Durham, NC, 1999-2003

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Editorial Board, *Mutation Research - Letters*, 1981-1994, and - *Genetic Toxicology and Environmental Mutagenesis*, 1997 to present, sections.
Expert panel member, FDA - Cellular Telecommunications meeting on RF genotoxicity, 2000
Participant in FASEB workshop on USDA proposed changes to animal welfare regulations, 2000
Reviewer of research proposals to FDA regarding RF genotoxicity, 2001
Contributor, IAEMS Online Training Module on Micronucleus Test, 2001
Reviewer/consultant: WHO IPCS Guidelines for monitoring of genotoxic effects of carcinogens in humans, 1999
UK Committee document on Mutagenicity Draft Guidelines, 2000
OECD Test Guidelines document on in vitro cell transformation assays, 2001

UNC Center for Environ. Health and Susceptibility Pilot Projects Program, 2003
Planning committee member, EMS/DOE International Human Germ Cell Mutagenesis Workshop, 2002
Advisor/mentor/host for six Ph.D. students and six postdoctoral/visiting scientists, 1985 to present

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Project Officer, Interagency Agreement with the US Department of Health and Human Services, NIH, NIEHS: Workshop on "Assessing Human Germ Cell Mutagenesis in the Post Genome Era", 2004
Contributor to development of NHEERL Human Health Research and Drinking Water Implementation Plans; Program projects in Harmonization of Cancer and Non-Cancer Risk Assessments, Dichloroacetic Acid, Bromate and Arsenic water contaminants, and Susceptible Populations (NCS, Aging), 2001-2004

Chair (1995–2001) and member (1986-2003), NHEERL Institutional Animal Care and Use Committee
NHEERL Technical Qualifications Board member, 1997-2000

Integrated Risk Information System, workgroup member on Acrylonitrile, 2003

NHEERL Divisional Liaison Officer, EPA Microarray Consortium, 1999-2001

NHEERL Imaging Core Facility Committee Member, 2003-present

NHEERL Veterinarian Search Committee, 2000, 2002

NHEERL Multipurpose QA/IACUC Protocol Development Committee, 2001

NHEERL Reviewer for American Petroleum Institute gasoline vapor studies, 2002-present

NHEERL New Facility Evaluation Panel member for deionized water contracts, 2002

PUBLICATIONS (10 out of a total of 95 publications):

1. Mori, C., J.W. Allen, D.J. Dix, N. Nakamura, M. Fujioka, K. Toshimori, and E.M. Eddy. Completion of meiosis is not required for acrosome formation in HSP70-2 null mice, **Biology of Reproduction**, 61:813-822, 1999.
2. Allen, J.W., B.W. Collins, A.J. Afshari, and J.F. Fuscoe. Dibenzo[a,l]pyrene induction of erythrocyte micronuclei in A/J and p53-deficient mice, **Polycyclic Aromatic Compounds** 16:51-60, 1999.
3. Allen, J.W., B.W. Collins, A. Lori, A.J. Afshari, M.H. George, A.B. DeAngelo, and J.C. Fuscoe. Erythrocyte and spermatid micronucleus analyses in mice chronically exposed to potassium bromate in drinking water, **Environmental and Molecular Mutagenesis**, 36:250-253, 2000.
4. Tian, D., H. Ma, Z. Feng, Y. Xia, X.C. Le, Z. Ni, J. Allen, B. Collins, D. Schreinemachers and J.L. Mumford. Analyses of micronuclei in exfoliated epithelial cells from individuals chronically exposed to arsenic via drinking water in Inner Mongolia, China, **Journal of Toxicology and Environmental Health**, Pt. A, 64:473-484, 2001.
5. Thai, S-F., J.W. Allen, A.B. DeAngelo, M.H. George and J.C. Fuscoe. Detection of early gene expression changes by differential display in the livers of mice exposed to dichloroacetic acid, **Carcinogenesis**, 22:1317-1322, 2001.
6. Barnes, J.A., D.J. Dix, B.W. Collins, B.W. Luft and J.W. Allen. Expression of inducible Hsp70 enhances the proliferation of MCF-70 breast cancer cells and protects against the cytotoxic effects of hyperthermia, **Cell Stress and Chaperones**, 6:316-325, 2001.
7. McDorman, E.W., B.W. Collins and J.W. Allen. Dietary folate deficiency enhances induction of micronuclei by arsenic in mice, **Environmental and Molecular Mutagenesis**, 40:71-77, 2002.
8. Barnes, J.A., B.W. Collins, D.J. Dix and J.W. Allen. Effects of heat shock protein 70 (Hsp70) on arsenite induced genotoxicity, **Environmental and Molecular Mutagenesis**, 40:236-242, 2002.
9. Thai, S-F., J.W. Allen, A.B. DeAngelo, M.H. George and J.C. Fuscoe. Altered gene expression in mouse livers after dichloroacetic acid exposure, **Mutation Research**, 543:167-180, 2003.
10. Kligerman, A.D., C.L. Doerr, A.L. Tennant, K. Harrington-Brock, J.W. Allen, E. Winkfield, P. Poorman-Allen, B. Kundu, K. Funasaka, B. C. Roop, M.J. Mass, D.M. DeMarini. Methylated trivalent arsenicals as candidate ultimate genotoxic forms of arsenic: induction of chromosomal mutations but not gene mutations, **Environmental and Molecular Mutagenesis**, 42:192-205, 2003.

BIOGRAPHICAL SKETCH

NAME: Gary W. Bangs

POSITION TITLE: Exposure

Science Coordinator

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Pennsylvania, Philadelphia, PA	B.A.	1974-	Biology
	B.S.	1977	Nursing
University of Miami, Coral Gables, FL	M.P.H.	1978-	Public Health
University of Washington, Seattle, WA		1980	
		1986-	
		1992	

PROFESSIONAL EXPERIENCE :

Exposure Science Coordinator, EPA Risk Assessment Forum	2003-Present
Exposure and Risk Assessor, EPA Office of Pesticides	1998-2003
Regional Program Manager, PHS Div. of Occupational Health	1988-1998
Clinical Nursing, Indian Health Service	1983-1986

SELECTED AWARDS AND HONORS :

Bronze Medal (OPPT) for Voluntary Children's Chemical Evaluation Program. (2003)
 US PHS Achievement Medal (OPPT) for Voluntary Children's Chemical Evaluation Program. (2003)
 Bronze Medal (OPP) for Multimedia Multipathway Risk Assessment for Atrazine. (2003)
 US PHS Commendation Medal (OPP) for Implementation of Food Quality Protection Act (FQPA – 2001)

INVITED LECTURES/SYMPOSIA :

Planner/Facilitator/Moderator: Colloquium on Probabilistic Risk Assessment, April 2004

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY :

Member, Dermal Exposure Assessment Subcommittee, American Industrial Hygiene Association, 2002-present, co-chair 2003-present

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY :

Staff, Risk Assessment Forum, 2003-present
 Member, Science Advisory Council for Exposure, Office of Pesticides, 1998-2003

BIOGRAPHICAL SKETCH

NAME: Stanley Barone Jr.,

POSITION TITLE: Research Biologist/ GS14

EDUCATION/TRAINING

INSTITUTION AND LOCATION

	DEGREE	YEAR(s)	FIELD OF STUDY
Belmont Abbey College, Belmont, NC	BS	1982	Biology
East Carolina University, Greenville, NC	MS	1985	Biology
East Carolina University SOM, Greenville, NC	PhD	1990	Anatomy/Cell Biology

PROFESSIONAL EXPERIENCE:

2003: 2004 –present GS14 Research Biologist in Effects Identification & Characterization Branch, NCEA-W USEPA

1997- 2003: GS13 Research Biologist in Cellular and Molecular Toxicology Branch, USEPA

1995- 1997: GS12 Research Biologist in Cellular and Molecular Toxicology Branch, USEPA

1994-1995: Research Scientist at ManTech Environmental a contractor for USEPA.

1992-1994: Project Scientist at ManTech Environmental a contractor for USEPA

1990-1992: Senior Scientist at ManTech Environmental a contractor for USEPA

1985-1990: Ph.D. candidate Dissertation project: *The effects of exogenous NGF and transplantation of fetal hippocampal cells after intradentate administration of colchicine.*

SELECTED AWARDS AND HONORS:

Scientific and Technical Achievement Award (STAA Level III) 1999: Kodavanti, P.R.S., Derr-Yellin, E.C., Mundy, W.R., Shafer, T.J., Herr, D.W., **Barone, S. Jr.**, Choksi, N.Y., MacPhail R.C., and Tilson, H.A. (1998) Repeated exposure of adult rats to Aroclor 1254 causes brain region specific changes in intracellular Ca²⁺ buffering and protein kinase C activity in the absence of changes in tyrosine hydroxylase. *Toxicol. Appl. Pharmacol.* **153**(2): 186-198.

Scientific and Technical Achievement Award (STAA Level III) 2000: **Barone, S. Jr.**, Changes in neurotrophic factor expression and signaling as markers of developmental neurotoxicity. *Developmental Brain Res.* (1998) **109**(1), 13-31, **109**(1), 33-49 and *Neurotoxicity Research.* **1**(4), 271-283.

Scientific and Technical Achievement Award (STAA Level III) 2003: Rice, D. and **Barone, S. Jr.** (2000) Critical periods of vulnerability for the developing nervous system: Evidence from humans and animal models. *EHP suppl. on Children's Health* **108** (suppl. 3), 511-533.

NHEERL Award for Outstanding Leadership (2002) in assisting OAR in developing the Agency's response to the delisting petition for methanol.

INVITED LECTURES/SYMPOSIA PRESENTATIONS (selected from 17 presentations over last 5 years):

1. Development and maturation of the nervous system: Neurobiological basis of vulnerability to environmental contaminants. California EPA sponsored conference, Children's Environmental Health-Risk Assessment Issues and Challenges, Oakland Ca. May 1, 2000.
2. Development and maturation of the nervous system: Anatomical Evaluation of Developmental Neurotoxicity. HED/OPP training course, Washington, DC. May 23, 2000.
3. Summary of past and present use of indicators in human health risk assessment for persistent bioaccumulated toxicants. 5th NHEERL symposium. Research Triangle Park, NC, June 6-8, 2000.
4. Latent effects of developmental exposure to neurotoxicants indicate compensation may come at cost late in life. IFTS symposium, Matsue, Japan. July 12-14, 2000.
5. Effects of gestational mercury exposure on neurotrophic factor signaling and altered development of the nervous system. *Microbiology, Immunology & Toxicology of Autism and Other Neurodevelopmental Disorders*. Sponsored by March of Dimes, CAN, MIND, Banbury Center, Cold Springs Harbor, New York. February 11-14, 2001.
6. Biomarkers of exposure and biomarkers of effect for developmental neurotoxicology: A case study with chlorpyrifos. *Region 10 Seminar Series*. Seattle, Washington, March 17, 2003.

ASSISTANCE/ LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Reviewer for Investigator Initiated Research proposal for Jeffress Research Grant from the Jeffress Memorial Trust (1999).

Reviewer for US Army specialty section on Neurotoxicology Investigator Initiated Research proposals (November

2000).

Reviewer for USEPA Office of Children's Health Protection request for proposal on developmental neurotoxicology (February 2001).

Reviewer and Scientific Advisory Board Member for Cure Autism Now (CAN) Investigator Initiated Research proposal on developmental neurotoxicology (2001).

Reviewer for Center for Environmental and Rural Health at Texas A&M University (CERH) pilot grants program (May 2001 and May 2003).

Reviewer for National Toxicology Program Center for the Evaluation of Risks to Human Reproduction (CERHR) review of developmental and reproductive toxicity data for methanol (February-October, 2001).

Reviewer for NCER-EPA/NIEHS proposals for Centers for Environmental Excellence on Children's Health (June, 2001 and August, 2003)

Ad hoc reviewer for FDA/National Center for Toxicological Intramural Research proposals (July 2002).

Member of Interagency Workgroup on Development and Behavior to National Children's Study, (2002-present).

Reviewer for Veterans Administration on role of cholinesterase inhibition in Gulf War Illness (September, 2004)

Adjunct appointment to the Anatomy and Cell Biology Department at East Carolina University School of Medicine. (1993-2004).

Adjunct appointment to the Toxicology Curriculum, University of North Carolina at Chapel Hill. (2002-2004).

Invited Chair of symposium on Children's Health and the Environment: Mechanisms and Consequences of Developmental Neurotoxicity (Little Rock, AK, 1999).

Organizer, chair and participant in Symposium for Society of Toxicology 2001 meeting; *The role of apoptosis in developmental neurotoxicity and neurodegeneration in adults*.

Invited Chair of Session 5: "*Environmental Influences as Etiologic Factors in Autism*" in Symposium on, Potential Cellular and Molecular Mechanisms in Autism and Related Disorders, Sponsored by NICHD and NIEHS, Co-sponsored by NIMH, NINDS, and NIDCD, Bethesda, MD, September 6-8, 2001.

Ad hoc reviewer for 15 different peer review journals.

ASSISTANCE/ LEADERSHIP PROVIDED THE AGENCY

Divisional Leader on Interagency Agreement to characterize the developmental neurotoxicity of mercury vapor exposure (EPA & NTP/NIEHS 1997-2002).

Consultant on OECD harmonization of developmental neurotoxicity testing guidelines coordinated NTD response on draft guidelines (1997-2001).

Member of the ORD *Mercury Research Strategy Team* (health effects section 1998-2000)

Reviewer for *OPP Developmental Neurotoxicity Retrospective Study* (1999) and ORD participant in OPP Scientific Advisory Panel presentation.

Consultant in EPA sponsored, Critical Windows of Exposure for Children's Health Workshop (coauthor and presenter of background paper on developmental neurotoxicology, Richmond, VA, 1999).

Reviewer and Consultant to OPP on Chlorpyrifos FQPA 10X safety factor document (2000) <http://www.epa.gov/oppsrrd1/op/chlorpyrifos/reevaluation.pdf>.

Consultant to OPP on testing protocol requirements for data call in (DCI) for organophosphate pesticides (2000).

Principal Investigator and participant in Interagency Agreement to characterize the developmental neurotoxicity of organotin mixtures in drinking water (EPA & NTP/NIEHS 2001).

Organizer for 5th NHEERL symposium on *Use of Indicators of Health and Ecology in Risk Assessment* and Cochaired session on *Indicators for Persistent Bioaccumulating Toxicants* (1999-2000).

Liaison and co lead of ORD team reviewing technical information on petition to delist methanol as a hazardous air pollutant (1999-2002) to OAQPS/OAR.

Organizer and participant in Workshop on *Harmonization of Risk Assessment Approaches* (sponsored by EPA- NCEA and NHEERL, 2003).

Consultant to OPPT on section 4 proposed test rule for testing neurotoxicity of selected solvents (2004).

PEER REVIEWED MANUSCRIPTS: (Selected from a total of 56 peer reviewed papers and book chapters and out of 24 in last five years):

1. Lassiter, T.L., Barone, S. Jr., Moser, V.C., and Padilla, S. Gestational exposure to chlorpyrifos: Dose response profiles for cholinesterase and carboxylesterase in the fetus and dam. *Tox. Sci.* **52**, 92-100, 1999.

2. Das, K. P. and Barone S. Jr. Neuronal differentiation in PC12 cells is inhibited by chlorpyrifos or its

- metabolites: Is acetylcholinesterase inhibition the site of action? *Toxicol. Appl. Pharmac.* **160**, 217-230, 1999. *Featured on Cover*
3. Mundy, W.R., Parran, D.K., and Barone, S. Jr. Gestational exposure to methylmercury alters the developmental pattern of neurotrophin- and neurotransmitter-induced phosphoinositide (PI) hydrolysis. *Neurotox. Res.* **1(4)**, 271-283, 2000.
 4. Barone, S. Jr., K. D. Das, T. L. Lassiter, & L. D. White. Vulnerable processes of nervous system development: a review of markers and methods. *Neurotoxicology* **21**: 15-36, 2000.
 5. Rice, D. C. & S. Barone Jr. Critical Periods of Vulnerability for the Developing Nervous System: Evidence from Humans and Animal Models. *Environ Health Perspect* **108 Suppl 3**: 511-533, 2000.
 6. Das, K., Chao, S., White, L.D., Haines, W., Tilson, H.A., Harry, J., & Barone, S., Jr. Differential patterns of nerve growth factor, brain derived growth factor, and NT-3 mRNA and protein levels in developing regions of the rat brain. *Neurosci.* **103**, 739-761. 2000.
 7. White, L.D. & Barone, S., Jr., Qualitative and quantitative estimates of apoptosis from birth to senescence in the rat brain. *Cell Death and Diff.* **8(4)**, 345-356, 2001.
 8. Parran, D.K., Mundy, W.R., & Barone, S. Jr. Differential effects of inorganic and organic mercury on differentiation and cytotoxicity in PC12 cells. *Tox Sci.* **59**, 278-290, 2001.
 9. Crumpton, T.L., Atkins, D., Zawia, N., & Barone S. Jr., Lead exposure in pheochromocytoma (PC12) cells alters neural differentiation and Sp1 DNA-binding. *NeuroToxicology.* **22(1)**:49-62, 2001.
 10. Dewoskin, R.S., Barone S. Jr., Clewell, H., & Setzer, R.W. Improving the development and use of biologically based dose response models (BBDR) in risk assessment. *Human and Ecological Risk Assessment*, **7(5)**, 1091-1120, 2001.
 11. Moser, V.C., Barone, S. Jr., Smialowicz, R.P., Harris, M.W., Davis, B.J., Overstreet, D., Mauney, M., and Chapin, R.E. The effects of perinatal tebuconazole exposure on adult neurological, immunological, and reproductive functions in rats. *Tox. Sci.* **62**, 339-352, 2001
 12. Morgan, D.L., Chanda, S.M., Price, H.C., Fernando, R., Liu, J., Brambilla, E., O'Conner, R.W., Beliles, R.P., & Barone, S. Jr. Disposition of Inhaled Mercury Vapor in Pregnant Rats: Maternal toxicity and Effects on Developmental Outcomes. *Tox. Sci.* **66** (2), 261-273, 2002
 13. Shafer, T.J., Meacham, C.A., & Barone, S. Jr. Effects of subacute exposure to nanomolar concentrations of methylmercury on voltage-gated sodium and calcium currents in PC12 cells. *Dev. Brain Res.* **136** (2), 151-164, 2002.
 14. Parran, D.K., Barone, S. Jr., Mundy, W.R. Methylmercury inhibits NGF-induced TrkA autophosphorylation and neurite outgrowth in PC12 cells. *Dev. Brain Res.* **141(1-2)**:71-81, 2003
 15. Meacham, C.A., White, L.D., Barone, S. Jr. and Shafer, T.J. Ontogeny of voltage-sensitive calcium channel α_{1A} and α_{1E} subunit expression and synaptic function in rat central nervous system. *Dev. Brain Res.* **142**, Issue 1: 47-65, 2003
 16. Jenkins, S. M., and Barone, S. Jr., The neurotoxicant trimethyltin causes apoptosis via oxidative stress, caspase activation and P38 protein kinase. *Toxicol. Letters* **147(1)**: 63-72, 2004.
 17. Parran, D.K., Barone, S. Jr., Mundy, W.R. Role of MAP kinase and Protein Kinase C in Methyl mercury inhibition of neurite outgrowth in PC12 cells. *Dev. Brain Res.* **149(1)**: 53-61, 2004.
 18. Jenkins, S. M., Ehman, K., and Barone S. Jr. Structure-Activity Comparison of Organotin Species: Dibutyltin is a Developmental Neurotoxicant *In Vitro* and *In Vivo*. *Dev. Brain Res.* **151**: 1-12, 2004.
 19. Herr, D.W., Chanda, S.M., Graff, J.E., Barone, S. Jr., Beliles, R.P., and Morgan, D.L. Evaluation of sensory evoked potentials in Long- Evans rats gestationally exposed to mercury (Hg⁰) vapor. *Tox. Sci.* **82**: 193-206, 2004.
 20. Meacham, C.A., Freudenrich, T.M., Anderson, W.L., Sui, L., Lyons- Darden, T., Barone, S. Jr., Gilbert, M.E., Mundy, W.R., and Shafer T.J. Accumulation of the Persistent Environmental Toxicants Methylmercury or Polychlorinated Biphenyls in *in Vitro* Models and Relevance to *in Vivo* Levels in Rat Neuronal Tissue. *Toxicol. Appl. Pharmac.* 2004(*in press*)

BIOGRAPHICAL SKETCH

NAME: Hugh A. Barton

POSITION TITLE: Toxicologist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Massachusetts Institute of Technology	B.S.	1982	Life Sciences
Massachusetts Institute of Technology	Ph.D.	1988	Toxicology
Massachusetts Institute of Technology	Postdoc.	1988-89	Biology

PROFESSIONAL EXPERIENCE:

US EPA, ORD/NHEERL/ETD/PKB, RTP, NC	1999-present
KS Crump Group, RTP, NC	1995-1999
ManTech Environmental, WPAFB, OH	1991-1995
ENSR Consulting and Engineering, Acton, MA	1989-1991

SELECTED AWARDS AND HONORS:

Bronze Award for Promoting Strong Science in Agency Decisions, OSP, ORD, Aug 2004.
Best Paper, Society of Risk Analysis, 2002
Best Paper, Risk Assessment Specialty Section of SOT, 2001
Best Paper, Risk Assessment Specialty Section of SOT, 2000

INVITED LECTURES/SYMPOSIA (Selected presentations from a total of 21 in the last 5 years):

1. Predictive Modeling in Neurotoxicology. *Lecture in Advanced Toxicology* course for Curriculum in Toxicology at University of North Carolina. Nov. 14, 2001.
2. Modeling Endocrine Active Compounds Across Life Stages. *Symposium on The Potential for Biological Modeling to Improve Children's Risk Assessment*, Society of Toxicology, March 2002, Nashville, TN (Abstract #268, The Toxicologist)
3. Predictive Simulation Modeling for Antiandrogen Impacts on Rodent Prostate. *Symposium on Biostatistical and Biomathematical Problems in Environmental Health*. Sponsored by NIEHS, University of North Carolina, Department of Biostatistics and Center for Environmental Health and Susceptibility. Research Triangle Park, NC. June 7, 2002.
4. Linking Dose, Mode of Action, and Response in a Human Health Risk Assessment Context. *Physiologically-Based Pharmacokinetic (PBPK) Approaches to Human Health Risk Assessment ORD/OPPTS Scientist-to-Scientist Meeting*. Arlington, VA. Nov. 6-7, 2002
5. Endocrine Active Substances and Dose-Response for Individuals and Populations. *Symposium on Endocrine Active Substances*. Sponsored by SCOPE/IUPAC Yokohama, Japan. Nov 17 - 21, 2002.
6. The PBPK Approach in Species, Dose, and Route Extrapolation. *Pharmacokinetics Continuing Education course*, Society of Toxicology. Salt Lake City, UT. March 9, 2003.
7. Children's Supplemental Cancer Guidelines and Life-stage Risk. *US EPA Regional Risk Assessors Conference*, Stone Mountain, GA. April 29, 2003.
8. Physiologically Based Pharmacokinetic (PBPK) Modeling and Mode of Action in Dose-Response Analysis. In *Mode of Action in Risk Assessment Symposium*. Environmental Mutagen Society, Miami, FL May 12, 2003.
9. Physiologically Based Pharmacokinetic (PBPK) Modeling to Determine the Human Equivalent Concentration (HEC). *US EPA Regions/OSRTI/ORD Workshop on Inhalation Risk Assessment: A Superfund Focus*, Washington, DC Sept 9 - 12, 2003.
10. Computational Pharmacokinetics During Developmental Windows of Susceptibility. *Toxicology and Risk Assessment Conference*, Cincinnati, OH April 26-30, 2004

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Biological Modeling Specialty Section, Society of Toxicology. Past-President 2003, President 2002, Vice-President 2001
ILSI-HESI Technical Committee on Agricultural Chemical Safety Assessment. Co-Chair of ADME Task Force. 2002 - 2004.

Cumulative risk assessment: getting from toxicology to quantitative analysis. Chaired & Organized Workshop at Society of Toxicology Annual Meeting, March 2003, Salt Lake City, UT.

SCOPE-IUPAC (Scientific Committee on Problems of the Environment, International Council for Science - International Union of Pure and Applied Chemistry) committee on Environmental Implications of Endocrine Active Substances: Present State of the Art and Future Research Needs. Yokohama, Japan, Nov 2002

Working Group on Direct Dosing of Neonatal Animals in Toxicity Testing, Sponsored by International Life Sciences Institute (ILSI), Sept. 2000 - Sept. 2002, Washington, DC.

Endocrine Disruptors Low Dose Peer Review, Sponsored by US EPA and NIEHS/NTP, Oct 10 - 12, 2000, Research Triangle Park, NC.

Adjunct Assistant Professor, Curriculum in Toxicology, The University of North Carolina at Chapel Hill (2003-present).

Adjunct Assistant Professor, School of Public Health, Boston University (1990-1993)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

ORD/NHEERL Chair, NHEERL Human Health Research Implementation Steering Committee 2001-2003

ORD Lead author for Draft Supplemental Guidance for Children's Cancer Risk 2003-4

OPPT Pharmacokinetics and interspecies extrapolation for perfluorooctanoic acid 2003-4

OPP Advice on pharmacokinetics and age-dependencies 2002-2004

OPPT Evaluation of isopropanol/acetone PBPK model 2002-2003

OPPT/NCEA Evaluation of 1,1,2-trichloroethane PBPK model for Hazard Air Pollutants route-to-route extrapolation for Enforceable Consent Agreement 2002-2003

ORD/NCEA Evaluation of PBPK models for methanol, methyl chloroform and advice on implementation in IRIS processes (2002-2004)

OAR/OTAQ Evaluated industry submitted pharmacokinetic studies for oxygenate fuel additives. 2000-2001

PUBLICATIONS (10 selected from a total of 15 published in last 5 years and overall total of 39 papers):

1. Andersen, M.E. and Barton, H.A. (1999) Biological regulation of receptor-hormone complex concentrations in relation to dose response assessments for endocrine active compounds. *Toxicol. Sci.* 48, 38-50.
2. Barton, H.A., Bull, R., Schultz, I., and Andersen, M.E. (1999) Dichloroacetate (DCA) dosimetry: Interpreting DCA-induced liver cancer dose response and the potential for DCA to contribute to trichloroethylene-induced liver cancer. *Toxicol. Lett.* 106, 9-21.
3. Barton, H.A., Deisinger, P.J., English, J.C., Gearhart, J.M., Faber, W.D., Tyler, T.R., Banton, M.I., Teeguarden, J., and Andersen, M.E. (2000) Family approach for estimating reference concentrations/doses for series of related organic chemicals. *Toxicol. Sci.* 54, 251-261.
4. Barton, H.A. and Clewell, H.J., III. (2000) Evaluating Noncancer Effects of Trichloroethylene: Dosimetry, Mode of Action and Risk Assessment. *Environ. Health Perspect.*, 108, Suppl 2, 335-342.
5. Clewell, H.J. III, Andersen M.E., and Barton H.A. (2002) A Consistent Approach for the Application of Pharmacokinetic Modeling in Cancer and Noncancer Risk Assessment. *Environ. Health Perspect.* 110, 85-93
6. Barton HA (2003) Endocrine Active Substances and Dose-Response for Individuals and Populations. *Pure Appl Chem* 75, 2159-2166.
7. Teeguarden, J.G. and Barton, H.A. (2004) Computational Modeling of Serum Binding Proteins and Clearance in Extrapolations across Life-Stages and Species for Endocrine Active Compounds. *Risk Anal.* 24, 751-770.
8. Barton, H.A. (2004) Computational pharmacokinetics during developmental windows of susceptibility. *J Toxicol Environ Health, Part A* (in press).
9. Clark, L.H., Setzer, R.W. and Barton, H.A. (2004) Framework for Evaluation of Physiologically-Based Pharmacokinetic Models for Use in Safety or Risk Assessment. *Risk Anal* (in press).

BIOGRAPHICAL SKETCH

NAME: Linda S. Birnbaum

POSITION TITLE: Division Director

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Rochester, Rochester, NY	B.S.	1967	Biology
University of Illinois, Urbana, IL	M.S.	1969	Microbiology
University of Illinois, Urbana, IL	Ph.D	1972	Microbiology
American Board of Toxicology	D.A.B.T.	1982	Toxicology

PROFESSIONAL EXPERIENCE:

1972 Visiting Assistant Professor (Microbiology), University of Illinois, Urbana, IL
1973-1974 Postdoctoral Fellow (Biochemistry), University of Massachusetts, Amherst, MA
1974-1975 Assistant Professor of Science, Kirkland (Hamilton) College, Clinton, NY
1975-1979 Research Associate/Fellow/Scientist, Masonic Medical Research Laboratory, Utica, NY
1979-1980 Senior Staff Fellow, National Toxicology Program, National Cancer Institute, RTP, NC
1980-1989 Research Microbiologist/Supervisory Research Microbiologist, National Toxicology Program, NIEHS, RTP, NC
1989-Present Director, Experimental Toxicology Division, RTP, NC
1998-1999 Acting Associate Director of Health, NHEERL, RTP, NC
2001-2002 Acting Director, Human Studies Division, Chapel Hill, NC

PROFESSIONAL SOCIETIES:

Society of Toxicology (President, 2005-2006)
American Society for Pharmacology and Experimental Therapeutics, Division of Toxicology (Past Chair)
NC Chapter of Society of Toxicology (Past President)
American Aging Association (Past Vice President)
Gerontological Society
American Association for the Advancement of Science
Phi Beta Kappa
Phi Kappa Phi
Sigma Xi

SELECTED AWARDS AND HONORS (1999 to present):

EPA Bronze Medal (Region 5) to Emerging Pollutants Workshop Planning Group (2004)
Scientific and Technological Achievement Award, Level II, EPA (2003)
Society of Toxicology Risk Assessment Specialty Section (RASS) Blue Ribbon, best abstract (2003)
EPA Honor Award for Science Achievement in Health Sciences (2002)
EPA Diversity Leadership Award (2001)
Scientific and Technological Achievement Award (STAA), Honorable Mention (2x) (2000)
STAA, Level II; Best Risk Assessment Paper, SOT (1999), STAA, Level III (1998)

INVITED LECTURES/SYMPOSIA (Selected presentations from a total of 62 in the past five years)

1. National Association of Fire Marshalls Organizational Meeting and Workshop, Greenbelt, MD (2004)
2. University of Michigan Dioxin Exposure Study (UMDES) SAB, Ann Arbor, MI (2004)
3. Swiss National Research Programme (NRP) 50 Endocrine Disruptors Workshop, Bern, Switzerland (2004)
4. The Mount Sinai Superfund Basic Research Program Workshop, Bear Mountain, NY (2004)
5. European Food Safety Authority Scientific Colloquium, Belgium, Brussels (2004)

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY: EPA Children's Health Protection Advisory Committee Panel, Washington, DC (Present); University of Michigan Dioxin Exposure Study (UMDES) SAB, Ann Arbor, MI (Present); GLNPO PBDE Grant Review (2003); State of Michigan Oral Bioavailability Scientific Review Committee (2001-2003); Serve on Board of SOT Vice President Succession (2002-2006); Chair, Division of Toxicology, ASPET (1998-2000); Executive Committee, RTP Drug Metabolism

Discussion Group (2000); Dioxin Organizing Committee Member (1998-2000); International Society for the Study of Xenobiotics Executive Committee (1996-2000); External Advisory Committee for NIEHS Planning Grant for an EHS Center (1993-2003)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY: EPA Region IV Environmental Research Seminar, Atlanta, GA (2004); HEI Biomonitoring Workshop, Research Triangle Park, NC (2004); EPA Regional Applied Research Effort (RARE) Cooperative Agreements; Agency-wide PBDE Workgroup and Steering Committee (Present); Agency-wide PBT Initiative (Present); NHEERL Drinking Water Implementation Plan Steering Committee (Present); Agency-wide BFR Group (Present); EPA CORE Operations Group (Present); EPA Human Health Risk Assessment Steering Committee (Present); ORD CCL Committee (Present); BFR Conference, RTP, NC (Present); Cross-Agency Workgroup on BFRs, Regions V and IX (Present); Review grants for Program Offices (Present); Dioxin Research Discussions, EPA HQ, Washington, DC (Present); Member of "Red Team" Emergency Response Team (Present); Working w/Regions to Develop PCB Superfund Guidance (2003); FSTRAC Speaker (2002); Speaker at Regional Risk Assessors on Endocrine Disruptors (2001)

PUBLICATIONS (A sampling of recent publications, out of a total of over 260 peer-reviewed manuscripts):

1. Staskal, Daniele, Diliberto, Janet J., Devito, Michael J., Birnbaum, Linda S. Toxicokinetics of BDE 47 in Female Mice: Effect of dose, route of exposure, and time. *Toxicological Sciences*. *In Press*.
2. Smialowicz, R. J., DeVito, M., Williams, W. C., and Birnbaum, L. S. Comparative immunotoxic potency of mixtures containing polychlorinated dibenzo-p-dioxins (PCDDs), dibenzofurans (PCDFs) and biphenyls (PCBs). *Toxicological Sciences*. *Submitted* (2004).
3. van Larabeke, N., Birnbaum, Linda S., Bracke, Marc, Boogaerts, Marc, Davis, Devra, Demarini, David, Kleinjans, Jos, Legator, Marvin, Schoeters, Greet, and Vahakangas, Kirsi. Unrecognized or Potential Risk Factors for Childhood Cancer. *International Journal of Occupational and Environmental Health*. *Submitted* (2004)
4. Schecter, Arnold, Papke, Olaf, Tung, Kuang-Chi, Staskal, Daniele, and Birnbaum, Linda. Polybrominated Diphenyl Ethers (PBDEs) Contamination of United States Food. *Environmental Health Perspectives*. *Available On Line*. (2004)
5. Birnbaum, L.S. and Staskal, D.F. Brominated Flame Retardants: Cause for Concern? *Environmental Health Perspectives*. Vol 112 (1): pp. 9-17 (2004)
6. DeVito, Michael J.; Blackwell, Lavonda; Birnbaum, Linda S. The Effects of 2,3,7,8- Tetrachlorodibenzo-P-Dioxin in a Murine Model of Type II Diabetes. *Submitted to Environmental Health Perspective* (2003)
7. Birnbaum, Linda S., Staskal, Dniele F., and Diliberto, Janet J. Health Effects of Polybrominated Dibenzop-dioxins (PBDDs) and Dibenzofurans (PBDFs). *Environment International*. Vol. 29(6), pp. 855-860 (2003)
8. Hamm, J.T.; Chen, C.-Y.; and Birnbaum, L.S. A Mixture of Dioxins, Furans and Non-Ortho PCBs Based Upon Consensus Toxic Equivalency Factors Produces Dioxin-like Reproductive Effects. *Toxicological Sciences*. Vol. 74 (1), pp. 182-191 (2003)
9. Ross, Peter S. and Birnbaum, Linda S. Integrating human and ecological risk assessment: A case study of Persistent Organic Pollutants (POPs) in humans and wildlife. *Journal of Human and Ecological Risk Assessment*, Vol. 9, No.1, pp.303-324 (2003)
10. Birnbaum, Linda S.; and Fenton, S.E. Cancer and Developmental Exposure to Endocrine Disruptors. *Environmental Health Perspectives*, Vol 111 (4), 389-394 (2003)
11. Fenton, Suzanne E., Hamm, Jonathan, Birnbaum, Linda S. and Youngblood, Geri L., Persistent abnormalities in the rat mammary gland following gestational and lactational exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). *Toxicological Sciences*, 67: 63-74 (2002)
12. Slezak, B.P., Hamm, J.T., Reyna, J., Hurst, C.H., , Birnbaum, L.S., 2,3,7,8- Tetrachlorodibenzo-p-dioxin (TCDD) mediated oxidative stress in male rat pups following perinatal exposure. *Journal of Biochemical and Molecular Toxicology*, Vol. 16, Page 49-52 (2002)
13. Birnbaum, L.S., Cummings, A.M., Dioxins and endometriosis: a plausible hypothesis. *Environmental Health Perspectives*, Vol. 110, number 1, Page 15-21 (2002)
14. Hurst, C., , Abbott, B.D., Schmid, J.E., Birnbaum, L.S. 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) disrupts early morphogenetic events that form the lower reproductive tract in female rat fetuses. *Toxicological Sciences* 65, 87-98 (2002)
15. Chen, C-Y, Hamm, J.T., Hass, J.R., Albro, P.W., and Birnbaum, L.S. A mixture of polychlorinated dibenzo-p-dioxins (PCDDs), dibenzofurans (PCDFs), and non-ortho polychlorinated biphenyls (PCBS) changed the lipid content of pregnant Long Evans rats. *Chemosphere* 46, 1501-1504 (2002).

16. VanBergelen, A.P.J.M., DeVito, M.J., and Birnbaum, L.S. Subchronic exposure to mixtures of dioxin-like compounds in rodents: II. Effects of cytochrome P450 induction after co-exposure with 2,2', 4,4', 5,5'-hexachlorobiphenyl (1999)
17. DeVito, M.J., Diliberto, J.J., Ross, D.G., Birnbaum, L.S. and Menache, M.G. Dose-response relationships for induction of CYP1A1 and CYP1A2 enzyme activity in liver, lung and skin in female mice following subchronic exposure to polychlorinated biphenyls. *Toxicology and Applied Pharmacology*, 167:157-172 (2000)
18. Wang, Xiaofeng, Santostefano, M.J., DeVito, M.J., and Birnbaum, L.S. Extrapolation of a PBPK model for dioxin across dosage regimen, gender, strain and species. *Toxicological Sciences*, 56:49-60 (2000).
19. Hamm, J.T., Sparrow, B.R., Wolf, D., and Birnbaum, L.S. *In Utero* and lactational exposure to 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin alters postnatal development of seminal vesicle epithelium. *Toxicological Sciences*, 54(2): 424-430 (2000)
20. Hurst, C.H., DeVito, M.J., and Birnbaum, L.S. Tissue disposition of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD) in maternal and developing Long Evans rats following subchronic exposure. *Toxicological Sciences*, 57:275-283 (2000)

BIOGRAPHICAL SKETCH

NAME: Jerry N. Blancato

POSITION TITLE: Acting Associate Director for Health

EDUCATION/TRAINING

Institution	Degree	Year	Field of Stud
Fordham University, Bronx, NY	B.S.,	1967- 1971	Chemistry
Hahnemann Medical College & Hosp. Philadelphia, PA	M.S.	1972-1977	Experimental Pathology
University of Delaware, Newark, DE	Ph.D.	1977-1985	Biomedical Engineering

PROFESSIONAL EXPERIENCE:

Acting Associate Director for Health, National Exposure Research Laboratory June – December, 2004
Office of Research and Development, US EPA

Acting Director, Human Exposure & Atmospheric Sciences Division March, 2003 – June, 2004
National Exposure Research Laboratory
Office of Research and Development, US EPA

Special Assistant, Human Exposure & Atmospheric Sciences Division April, 2002 – March, 2003
National Exposure Research Laboratory
Office of Research and Development, US EPA

Acting Director, Human Exposure & Atmospheric Sciences Division August, 2001 – April, 2003
National Exposure Research Laboratory
Office of Research and Development, US EPA

Chief, Exposure and Dose Research Branch
Human Exposure & Atmospheric Sciences Division November, 1997 – July, 2001
National Exposure Research Laboratory
Office of Research and Development, US EPA

Program Manager, Exposure Research Program January 1996 – November, 1997
Analytical Science Branch
Environmental Monitoring Sciences Division
National Exposure Research Laboratory
Office of Research and Development, US EPA

Research Biologist, Exposure Research Program March, 1989 – December, 1995
Analytical Science Branch
Environmental Monitoring Sciences Laboratory- Las Vegas
Office of Modeling, Monitoring and Quality Assurance
Office of Research and Development, US EPA

Environmental Health Scientist
Exposure Assessment Group
Office of Health & Environmental Assessment
Office of Research and Development, US EPA

June, 1985 – March, 1989

SELECTED AWARDS AND HONORS:

Recipient: Bronze Medal from ORD for Education and Outreach

Recipient: Bronze Medal from OPP for development of scientific research program to aid in improved risk assessments.

INVITED LECTURES/SYMPOSIA:

Power, F.W., Blancato, J.N., Ruiz, A., Licitra, J. and Ventresca, J. "An Advanced PBPK Model Input System and Data Repository for Complex Models With Export for the ACSL Model Engine" Annual Meeting of the Society of Toxicology, March, 2000.

Scott, C.S., Blancato, J.N., Power, F.W., Fisher, J.W. "Application and Use of Dose Estimating Exposure Model (DEEM) for Route to Route Dose Comparisons After Exposure to Trichloroethylene (TCE)" Annual Meeting of the Society of Toxicology, March, 2000.

Blancato, J.N., Power, F.W. and Fisher, J.W. "Application and Use of Dose Estimating Exposure Model (DEEM) for Dose Comparisons After Exposure to Trichloroethylene (TCE)" Annual Meeting of the Society of Toxicology, March, 2000.

Tseng, A.M., Brown, R.N., Power, F.W., Blancato, J.N., Scott, C.W. "Uncertainty Analysis of TCE Using the Dose Estimating Exposure Model (DEEM) in ACSL" Annual Meeting of the Society of Toxicology, March, 2000.

Knaak, J.B., Dary, C.G., Patterson, G.T. and Blancato, J.N. "Use of PBPK/PD Models and Foliar Transfer Coefficients in Assessing Reentry into Pesticide Treated Citrus and Turf" Annual Meeting of the Society of Toxicology, March, 2000.

Blancato, J.N., Power, F.W., Rigas, M.L., Brown, R.N. "Dose Estimating Exposure Model (DEEM) Architecture to Estimate Relevant Toxicological Dose" Annual Meeting of the Society of Toxicology, March 1999.

Dary, CC., Furtaw, E.J., Blancato, J.N., Knaak, J.B., Saint, C.G. "Quantitative Structure Activity Relationship (QSAR) for Predicting the Potential Dermal Dose and Disposition of Organophosphorus Insecticides" Annual Meeting of the Society of Toxicology, March 1999.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

ILSI Workgroup on Dose Selection

ILSI Steering Group on Biomarkers

Member of Workgroup on Urban Air Transport Models and Their Standard of the Interagency Steering Committee on Multimedia Environmental Models

Adjunct Faculty, University of North Carolina – Graduate Committees

Adjunct Faculty, University of Nevada-Las Vegas – Graduate Committees and part-time Faculty

Adjunct Faculty, Community College of Southern Nevada

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member of the ORD Science Council 2004 –

Health Effect Committee of the Agency Risk Assessment Forum 2004 – and 1990 – 1992

Have worked on numerous dose metric issues and contributed to several risk assessments for the Agency.

Developed ORD training program for OPP and its national and international stake holders and collaborators, August 2004

PEER REVIEWED PUBLICATIONS:

Sohn, M.D., McKone, T.E., Blancato, J.N. "Reconstructing Population Exposure from Dose Biomarkers: Inhalation of Trichloroethylene (TCE) as a Case Study" Journal of Exposure Analysis, 14(3): 204-213, 2004

Blancato, J.N. Power, F.W., Wilkes, C.R, Tsang, A.M. Hern, S.C. and Olin, SS Integrated Probabilistic and Deterministic Modeling Techniques in Estimating Exposure to Water-borne Contaminants: Part 2: Pharmacokinetic Modeling in Proceedings of Indoor Air 2002 International Conference

BIOGRAPHICAL SKETCH

NAME: M. Patricia Bradley

POSITION TITLE: Research Program Manager

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Towson University	BS	1976	Music Education
Golden Gate University	MBA	1985	Mgmt, Statistics
Towson University	none		Ecology

PROFESSIONAL EXPERIENCE :

2001-present Director, Mid-Atlantic Integrated Assessment (MAIA)
1996-2001 Research Program Manager, MAIA
1989-1996 Associate Director, Environmental Research Laboratory, Narragansett, RI
1988-1989 Program Analyst, Office of Research and Development, Washington, DC
1987-1988 Program Analyst, Chief of Naval Operations, Washington, DC
1985-1987 Program Analysis Officer, Naval Supply Center, Norfolk, VA

SELECTED AWARDS AND HONORS :

CIO Partnership Award, EPA Office of Environmental Information, June 2004
U.S. EPA Bronze Medal for Developing New, Innovative Assessment Techniques for the Integration of Environmental Data, 1999

INVITED LECTURES/SYMPOSIA (5 presentations in the last 5 years):

1. MAIA/STAR Grant Pilot Program Overview. Presented at the National Research Council's Commission on Life Sciences, Board on Environmental Studies and Toxicology, Review of EPA's Research Grants Program, 2002.
2. Collaborative Research, Monitoring and Assessment in the Mid-Atlantic Region. Presented at Pennsylvania's Department of Environmental Protection, Rachel Carson Keynote Presentation. April 22, 2004.
3. Collaborative Research, Monitoring and Assessment in the Mid-Atlantic Region. Presented at the University of Pennsylvania, Institute of Environmental Studies. October 3, 2002.
4. Collaborative Research, Monitoring and Assessment in the Mid-Atlantic Region. Presented at Towson University. June 18, 2003.
5. Keynote Speech - Wor-Wic CC, 2002.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

1. Science Advisory Committee, National Park Service, National Capital Region
2. Chair, External Advisory Board for the Center for Integrating Statistical and Environmental Science, the University of Chicago, 2003-2004
3. Collaborator, NSF LTER, Baltimore Ecosystem Study
4. Developed MAIA Case Studies Course - UMBC and Penn (current), Towson University, GW and JMU (future) - transfer of state-of-science MAIA activities to graduate students
5. Member Steering Committee, Baltimore County Forest Sustainability Program
6. As MAIA Director, developing a broad-based partnership to integrate scientific knowledge into the decision-making process for the Mid-Atlantic.
7. Organizing Committee, Mid-Atlantic Landuse Conference, 2004
8. Organizing Committee, Mid-Atlantic Urban Growth Workshop, Science Workgroup of the MAFPE Urban Sprawl Growth Committee, 2001
9. Organizing Committee, Restoration Economics Conference, planned for Fall 2005
10. Organizing Committee, Stormwater Management Workshop, planned for January 2005
11. Co-Chaired a Session at the 2004 International Society for Quality-of-Life Studies Conference

12. Participated in Planning Workshop on Long-Term Ground-Water Monitoring in MD, 2002

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY :

1. EMAP Information Management Working Group
2. Chair, Planning Committee, Aging Americans: Impacts on Ecology and Environmental Quality Workshop, 2004
3. Co-Chair, Organizing Committee, ReVA/MAIA Conference 2003
4. Contributor to Eco Chapter of EPA's Draft Report on the Environment 2003 (EPA-260-R-02-006)
5. Technical Committee for EMAP Symposium 2001
6. Organizing Committee and Co-Chaired a Session for EMAP Symposium 1999
7. Chair, Organizing Committee, MAIA Working Conference 1998
8. Assisted in Planning and presenting at a Workshop on Probabilistic Monitoring and Assessment for EPA Region 3 Water Division personnel
9. Advisory Committee for the "Case Study on the Use of Environmental Indicators and Measurements in Results-based Management", EPA Region 2

PUBLICATIONS (9 selected from a total of 9 published in last 5 years and overall total of 8 papers and 1 books):

1. Bradley, M.P., and Kutz, F.W. 2004. Major Monitoring Networks: A foundation to preserve, protect and restore. ***Environmental Monitoring***, edited by G. Bruce Wiersma, Chapter 27, CRC Press, 2004.
2. Bradley, M.P. and Smith, E. 2004. Using Science to Assess Environmental Vulnerabilities. ***Environmental Monitoring and Assessment*** 94:1-7, 2004.
3. Bradley, M.P., Hanson, R., and Walbeck, E.S. 2004. Innovative Environmental Education Contributes to Improved Management Practices in the Mid-Atlantic Region of the United States. ***Environmental Monitoring and Assessment*** 94:205-215, 2004.
4. Bradley, M.P. and Landy, R.B. 2000. The Mid-Atlantic Integrated Assessment (MAIA). ***Environmental Monitoring and Assessment*** 63:1-13, 2000.
5. Bradley, M.P., Brown B.S., Hale, S.S., Kutz, F.W. Landy, R.B., Shedlock, R., Morris, A. Galloway, W.B., Rosen, J.S., Pepino, R. and Wiersma, B. 2000. Summary of the MAIA Working Conference. ***Environmental Monitoring and Assessment*** 63:15-29, 2000.
6. Campbell, D., Meisch, M., DeMoss, T., Pomponio, J., and Bradley, M.P. 2004. Keeping the books for environmental systems: An Emergy analysis of West Virginia. ***Environmental Monitoring and Assessment*** 94:217-230, 2004.
7. Hale S.S., Miglarese, A.H., Bradley, M.P., Belton ,T.J., Cooper, L.D., Frame, M.T., Friel, C.A., Harwell, L.M., King, R.E., Michener, W.K., Nicolson, D.T., and Peterjohn, B.G. 2003. Managing troubled data: Coastal data partnerships smooth data integration. ***Environmental Monitoring and Assessment*** 81 (1-3):133-48.

BIOGRAPHICAL SKETCH

NAME: Rebecca L. Calderon

POSITION TITLE:

Division Director

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Iowa, Iowa City, IA	B.S.	1973-1977	Microbiology
University of Rhode Island, Kingston, RI	M.S.	1977-1979	Microbiology
Yale University, NewHaven, CT	MPH	1979-1981	Infectious Disease
Yale University, New Haven, CT	M. Phil	1981-1982	Environmental Epi
Yale University, New Haven, CT	Ph.D	1981-1985	Environmental Epi

PROFESSIONAL EXPERIENCE:

Director, Human Studies Division, NHEERL, ORD, EPA	2004-Present
Acting Director, Human Studies Division, NHEERL, ORD, EPA	2003-2004
Chief, Epidemiology & Biomarkers Branch, NHEERL, ORD, EPA	1996-2003
Epidemiologist, Epidemiology & Biomarkers Branch, NHEERL, ORD, EPA	1992-1996
Epidemiologist, Office of Health Research, ORD, EPA	1989-1992
Associate Research Scientist and Lecturer, Yale School of Medicine.	1986-1989

SELECTED AWARDS AND HONORS:

- 1999-2000: American Society for Microbiology Foundation Lecturer
- 2000 - Water Technology, One of 20 most influential people in drinking water research
- 2001 - USEPA, Diversity Leadership Award
- 2003 - USEPA Special Award for Beaches Recreational Waters Initiatives on Waterborne Pathogens
- 2004 - USEPA, Gold Medal for Report on the Environment, Technical Document

INVITED LECTURES/SYMPOSIA (Selected presentations from a total of 18 in the last 5 years):

1. "Pathogens and Nonpoint Source Pollution" Great Lakes Nonpoint Source Pollution from Land Use Workshop: a Post-PLUARG Review, Ann Arbor, MI, 2004
2. "New Indicators for Beaches Coming Your Way", Annual Meeting of the National Environmental Health Association, Anchorage, AK, May 2004
3. "Endemic Waterborne Illness", Annual Meeting of the National Environmental Health Association, Anchorage, AK, May 2004
4. "Report on the Environment - Health Chapter", Annual Meeting of the National Environmental Justice Advisory Committee, New Orleans, LA, April 2004
5. "Cardiovascular Disease and Water Minerals, 1970-1985", WHO workshop on replacing minerals in water, Rome, Italy, November 2003
6. "Air Pollution and the Elderly", Annual Meeting of the American Public Health Association, San Francisco, CA, November 2003
7. "Waterborne Disease Outbreaks: 30 years of reporting", National Environmental Health Association Annual Meeting, Reno, NV, June 2003
8. "Waterborne Disease Outbreaks and Backflow Prevention" International Backflow Prevention Annual Conference, Detroit, MI, April 2003
9. "Arsenic Epidemiologic Studies on US populations", Japanese/US Arsenic Meeting, Honolulu, Hawaii, December 11-14, 2002
10. Participant: Combined Sewer Overflows Workshop: Determining the Health Effects, September 2002

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

HESI/ILSI - Futures Planning, 2004

World Health Organization, Zoonoses Transmitted by Water, 2003

World Health Organization, Minerals and Water Advisory Panel, 2003

Member, Fifth International Arsenic Congress Organizing Committee, 2002 - present

CSTE/CDC Committee on Public Health Indicators for Water, 2000-2001

Mission Bay, California Epidemiologic Advisory Panel, 2002-present

American Academy of Microbiology - Enteric Disease Panel, 2002

Department of the Army, Gulf War Illness panel, 2001

American Water Works Research Foundation, Arsenic Advisory Committee, 2000

American Water Works Research Foundation, CCL Advisory Committee, 1999

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Accountability Health Research Initiative cochair - present

State of the Environment Report: Technical Supporting Document on Health 1993- present

Beaches Action Plan: Revision and Update, 2001 - present

NHEERL Multiyear planning for drinking water, human health risk assessment, 1999-present

Human Health Risk Assessment: Public Health Benefit Workgroup, 1999-2001

ORD Leadership Development Workgroup, 2003 - present

National Estimate of Waterborne Disease Workgroup - 1998- present

NHANES Users Group, 1996-2000

PUBLICATIONS (10 selected from a total of 28 published in last 5 years and overall total of 59 papers and 14 book chapters, books and symposium papers):

1. Frost FJ, Muller T, Craun CF, Calderon RL, Roefer PA, "Paired City *Cryptosporidium* Serosurvey in the southwest USA" Epidemiology and Infection 126: 301-307, 2001.
2. Craun GF, Frost FJ, Calderon RL, Hilborn E, Fox KR, Reasoner DJ, Poole C, Rexing DJ, Hubbs SA, Dufour AP, "Improving Waterborne Disease Outbreak Investigations", International Journal of Environmental Health, 11: 233-247, 2001.
3. Frost FJ, Muller T, Craun GF, Lockwood WB, Calderon RL, "Serological Evidence of Endemic Waterborne *Cryptosporidium* Infections", Annals of Epidemiology: 12:222-227, 2002
4. Craun, G, Nwachuku, N, Calderon RL, Craun MF "Outbreaks in Drinking Water Systems, 1991-1998, Journal of Environmental Health, 65: 16-23, 2002.
5. Lee SH, Levy DA, Craun CF, Beach MJ, Calderon RL "Surveillance for Waterborne-Disease Outbreaks – United States, 1999-2000" MMWR 51/SS-8: 1-47, 2002.
6. Peterson, CA, Calderon RL "Trends in Enteric Disease as a Cause of Death in the United States, 1989-1996" American Journal of Epidemiology, 57: 58-65, 2003.
7. Abernathy, CO, Thomas, DJ, Calderon RL. "Health Effects and Risk Assessment of Arsenic", Journal of Nutrition, supplement 1536S-1538S, 2003.
8. Frost FJ, Kunde T, Muller T, Craun CF, Calderon RL, Katz LM, Hibbard AJ "Serological Responses to *Cryptosporidium* Antigens Among Users of Surface versus Underground Drinking Water Sources", Epidemiology and Infection 131: 1131-1138, 2003.
9. Zenick H, Calderon RL "Human Health Outcomes and Accountability", Environmental Policy Report. 10:1-5, 2004
10. Calderon RL, Thomas DJ, Abernathy CO "Consequences of Acute and Chronic Exposure to Arsenic", Annals of Pediatrics. 33: 461-466, 2004.

BIOGRAPHICAL SKETCH

NAME: Ralph L. Cooper

POSITION TITLE:

Branch Chief

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Monmouth College, W. Long Branch, NJ; Psychology, Rutgers University, Newark, NJ	B.A., Ph.D.	1963-1968 1968-1973	Psychology Psychobiology
Duke University, Durham, NC, 1973-1975.	Postdoc.	1973-1976	Neuroscience Program

PROFESSIONAL EXPERIENCE :

Chief, Endocrinology Branch, RTD, NHEERL, ORD EPA 1995 - Present
Chief, Endocrinology/Gerontology Section, RTD, NHEERL, 1984-1995
Assistant Medical Research Professor, Medical Psychology Dec. 1977- Aug. 1984
Duke University Medical Center, Durham, NC
Research Associate, Dept Psych. Duke University Jan. 1976 - Dec. 1977
NIMH Postdoctoral Fellow Jan. 1973 - Dec. 1975
Duke University Neuroscience Program

SELECTED AWARDS AND HONORS:

Recipient, ORD Award for Outstanding Technical Assistance to OPPTS during the standardization and validation of Tier 1 Screening Battery of EDCs. 2000
Recipient, Reproductive and Developmental Toxicology Specialty Section's Best Paper Published in Toxicological Sciences in 1999.
Recipient, Reproductive and Developmental Toxicology Specialty Section's Best Paper Published in Toxicological Sciences in 2000.
Recipient, Office of Pesticides Programs Health Effects Division Team Award 2003.
Recipient, Bronze Medal for Promoting Strong Science in Agency Decisions 2004.

INVITED LECTURES/SYMPOSIA (Selected presentations from a total of 24 in the last 5 years):

1. Evaluating endocrine disruptors that act on the brain. SETAC-EUROPE OECD Expert Workshop on Endocrine Modulators and Wildlife, Veldhoven, Holland (2000).
2. Atrazine: Mode of Action and Developmental Studies. Presentation to the FIFRA Scientific Advisory Panel on Hazard and Dose-Response Assessment and Characterization of atrazine Crystal City, Va. June (2000).
3. Mammary Tumors and Altered Reproductive Function Following Atrazine in the Rat. Seminar presented at the University of Zurich, Zurich Switzerland. (2000).
4. Reproductive Effects of Chlorotriazines. Presented at the International Workshop on Endocrine Disruptors, National Institute of Environmental Sciences, Tsukuba, Japan. March (2001).

5. Mode and Mechanism of Atrazine. Presentation to the NHEERL Board of Scientific Counselors, RTP, NC. October, (2001).
6. Evaluation of the Male and Female Pubertal Assay to Detect Endocrine Disrupting Chemicals. Presentation to the Endocrine Disruptor Evaluation and Validation Sub-Committee, Washington, DC. December, 2001.
7. Research Highlights on Endocrine Disruptors within NHEERL. Presentation to Assistant Administrator, Office of Research and Development, March (2002).
8. Role of Atrazine in prostate inflammation. Workshop on Adverse Effects of Atrazine. Ponte Verde, Fla, Dec. 2002.
9. Design and status of a Tier 1 for assessing reproductive, immunological and neurotoxicological effects. ILSI-HESI Life Stages Task Force Meeting, Washington DC, July (2003).
10. A proposed *in vitro* screen for ER/AR agonist and antagonist. Presented to OPPTS, June, 2004).

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Member, Executive Committee, Triangle Consortium for Reproductive Biology (1990 - present).

Chair, Special Emphasis Panel, Conference Grant Applications (R-13) National Institute of Environmental Health Sciences (1999-2001).

Participant: SETAC-EUROPE OECD Expert Workshop on Endocrine Modulators and Wildlife, Veldhoven, Holland (1999).

Member, National Toxicology Program, National Institute of Environmental Health Sciences in October 2000, Low-Dose Peer Review Workshop, Expert Panel on Bisphenol A. RTP, NC (2000).

Participant: Joint US/EU Endocrine Disruptor Research Expert Panel Meeting, Ispra, Italy (2000).

Co-chair ILSI-HESI Life Stages Task Force of the Technical Committee on Agricultural Chemical Safety Assessment (2003-2004).

Adjunct Assistant Professor, Department of Psychology, Duke University (1984-present).

Adjunct Assistant Medical Research Professor, Division of Medical Psychology
Duke University Medical Center (1984-present).

Adjunct Professor, Department of Anatomy, Physiological Sciences and Radiology
North Carolina State University College of Veterinary Medicine (1996-present).

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Chair, committee for developing the Framework for the NHEERL Research Implementation Plan for Endocrine Disruptors (1999-present).

Member, OPPTS/ORD Endocrine Disruptors Screening and Testing Implementation Group (1998-present).

Co-chair Emerging Issues in Reproductive Toxicology (“Hot Topics”) Workshop” RTP, North Carolina May (2001).

Member ORD EDC Multi-Year Plan, steering committee (2003-present).

EPA Representative on the Interagency Working Group (IWG) on Endocrine Disruptors of the National Science and Technology Council (NSTC) Committee on Environment and Natural Resources (CENR) Toxics and Risk Subcommittee 2003-present.

PUBLICATIONS (20 selected from a total of 35 published in last 5 years and overall total of 116 papers and 2 books):

1. Cooper, R.L., Goldman, J.M., Stoker, T.E. Neuroendocrine and reproductive effects of contemporary-use pesticides. **Toxicology and Industrial Health** 15: 26-36. (1999).
2. Stoker, T.E., Robinette, C.L. and Cooper, R.L. Maternal exposure to atrazine during lactation suppresses suckling-induced prolactin release and results in prostatitis in the adult offspring. **Toxicological Sciences**. 52(1): 68-79, 1999.
3. Stoker, T.E., Robinette, C.L., Britt, B.H. and Cooper, R.L. Prepubertal exposure to compounds that increase prolactin in the male rat: Effects on adult prostate. **Biology of Reproduction**. 61(6): 1636-1643, 1999.
4. Stoker, T.E., Robinette, C.L. and Cooper, R.L. Perinatal exposure to estrogenic compounds and the subsequent effects on the prostate of the adult rat: Evaluation of inflammation in the ventral and lateral lobes. **Reproductive Toxicology** 13: 463-472, 1999.
5. Cooper, R.L., Stoker, T.E., Tyrey, L., Goldman, J. M. and McElroy, W.K. Atrazine disrupts hypothalamic control of pituitary-ovarian function. **Toxicological Sciences**. 53: 297-307, 2000.
6. Goldman, J.M., Laws, S.C., Balchak, S.K., Cooper, R.L. and Kavlock, R.J. Endocrine disrupting chemicals: Prepubertal exposures and effects on sexual maturation and thyroid activity in the female rat. A review of the EDSTAC recommendations. **Critical Reviews in Toxicology**. 30: 135-196, 2000
7. Laws SC, Carey SA, Ferrell JM, Bodman GJ, Cooper RL. Estrogenic activity of octylphenol, nonylphenol, bisphenol A and methoxychlor in rats. **Toxicological Sciences**. 54(1): 154-1667, 2000.
8. Stoker, T.E., Parks, L.G., Gray, L.E., and Cooper, R.L. Endocrine disrupting chemicals: Prepubertal exposures and effects on sexual maturation and thyroid activity in the male rat. A review of the EDSTAC recommendations **Critical Reviews in Toxicology** 30: 197-252, 2000.
9. Das, P.C., McElroy, W.K. and Cooper, R.L. Differential Modulation of

- Catecholamines by Chlorotriazine Herbicides in Pheochromocytoma (PC12) cells *in vitro*. **Toxicological Sciences**. 56: 324-331, 2000.
10. Laws, S.C., Ferrell, J.M., Stoker, T.E., Schmid, J., and Cooper, R.L. The effect of atrazine on puberty in female wistar rats: an evaluation in the protocol for the assessment of pubertal development and thyroid function. **Toxicological Sciences**. 58(2): 366-376, 2000.
 11. Stoker, T.E., Laws, S.C., Guidici, D., and Cooper, R.L. The effects of atrazine on puberty and thyroid function in the male wistar rat: An evaluation of a protocol for the assessment of pubertal development and thyroid function. **Toxicological Sciences**. 58: 50-59, 2000.
 12. Das, P.C., McElroy, W.K. and Cooper, R.L. Alteration of catecholamines in pheochromocytoma (PC12) cells *in vitro* by the metabolites of chlorotriazine herbicide. **Toxicological Sciences**. 59: 127-137, 2001.
 13. Putz, O., Schwartz, C.B., Kim, S., LaBlanc, G.A., Cooper, R. L. and Prins, G.S. Neonatal low-and high dose exposure to estradiol benzoate in the male rat: I. Effects on the prostate gland. **Biology of Reproduction** 65: 1496-1505, 2001.
 14. Putz, O., Schwartz, C.B., LaBlanc, G.A., Cooper, R. L. and Prins, G.S. Neonatal low-and high-dose exposure to estradiol benzoate in the male rat: II. Effects on male puberty and the reproductive tract. **Biology of Reproduction** 65:1506-1517, 2001.
 15. Cooper, R.L., and Kavlock, R.J. Endocrine Disrupting Chemicals (EDCs): Session Overview. **International Journal of Human and Ecological Risk Assessment**. 7: 971-978, 2001.
 16. Stoker T.,E, Goldman J.M. and Cooper R.L.. Delayed ovulation and pregnancy outcome: effect of environmental toxicants on the neuroendocrine control of the ovary. **Environmental Toxicology and Pharmacology**, 9: 117-129, 2001
 17. Stoker, T.E., Guidici, D.L., Laws, S.C. and Cooper, R.L. The effects of atrazine metabolites on Puberty and Thyroid Function in the Male Wistar Rat: An Evaluation in the Male Pubertal Protocol. **Toxicological Sciences**. 67: 198-206, 2002.
 18. Stoker, T.E. Jeffay, S.C., Zucker, R.M., Cooper, R.L. and Perreault, S.D. Abnormal Fertilization is Responsible for Reduced Fecundity Following Thiram-induced Ovulatory Delay in the Rat. **Biology of Reproduction**. 68: 2142-2149. (2003).
 19. Das, P.C., McElroy, W.K. and Cooper, R. L., Potential mechanisms responsible for chlorotriazine-induced changes in catecholamine metabolism in pheochromocytoma cells. **Life Sciences**. 73: 3123-3138 (2003).
 20. Laws, S.C., Ferrell, J.M., Stoker, T.E. and Cooper, R.L. Pubertal development in female Wistar rats following exposure to propazine and atrazine biotransformation by-products, diamino-s-chlorotriazine and hydroxyatrazine. **Toxicological Sciences** 76: 190-200 2003.

21. Stoker, T.E., Laws, S.C., Crofton, K.M., Hedge, J.M., Ferrell, J.M., and Cooper, R.L. Assessment of DE-71, a common commercial polybrominated diphenyl ether (PBDE) mixture, in the EDSP male and female pubertal protocols. **Toxicological Science** 78:144-155 2004.

BIOGRAPHICAL SKETCH

NAME: Kevin M. Crofton
EDUCATION/TRAINING

POSITION TITLE: Neurotoxicologist

Institution	Degree	Year	Field of Study
Miami University, Oxford, OH	B.S.	1977	Zoology
Miami University, Oxford, OH	M.S.	1980	Zoology
University of North Carolina, Chapel Hill, NC	Ph.D.	1986	Toxicology

PROFESSIONAL EXPERIENCE:

- 2/98 - Present Toxicologist (GS-14): Neurotoxicology Division, National Health and Environmental Effects Research Laboratory, Office of Research and Development, U.S. EPA, Research Triangle Park, N.C.
- 09/03 - Present Adjunct Assistant Professor, Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC
- 9/93 - Present Adjunct Assistant Professor, Department of Environmental and Molecular Toxicology, North Carolina State University, Raleigh, NC
- 6/02 - 10/02 Acting Chief, Neurophysiological Toxicology Branch, Neurotoxicology Division, National Health and Environmental Effects Research Laboratory, Office of Research and Development, U.S. EPA, Research Triangle Park, N.C.
- 2/02 - 6/02 Acting Chief, Neurobehavioral Toxicology Branch, Neurotoxicology Division, National Health and Environmental Effects Research Laboratory, Office of Research and Development, U.S. EPA, Research Triangle Park, N.C.
- 6/01 - 11/01 Toxicologist: Temporary detail to Office of Pesticide Programs, Health Effects Division, U.S. EPA, Washington, DC.
- 5/88 - 1/98 Toxicologist (GS13): Neurotoxicology Division, Neurotoxicology Division, National Health and Environmental Effects Research Laboratory, Office of Research and Development, U.S. EPA, Research Triangle Park, N.C.
- 9/90 - 9/91 Adjunct Associate Professor, Department of Psychology, North Carolina Central University

PROFESSIONAL SOCIETIES & PUBLICATION BOARDS:

Member: Neurobehavioral Teratology Society, International Neurotoxicology Association, Society of Toxicology/North Carolina Chapter, Society of Toxicology

Editorial Boards: Toxicological Sciences (2000 - present), NeuroToxicology (1992-1999, 2001 - present), Neurotoxicology and Teratology (1996-present)

SELECTED AWARDS AND HONORS:

- ORD Award for "Exceptional/Outstanding ORD Technical Assistance to the Regions or Program Offices" (2003).
- Scientific and Technological Achievement Award for Research on the Relevance of Animal Models of Developmental Thyroid Hormone Disruption in the Neurotoxicity of Polychlorinated Biphenyls - Level III (2001)

INVITED LECTURES/SYMPOSIA:

- Assessing the Risk of Pyrethroid Insecticides: Cumulative and Aggregate Exposures" Global Health Assessment and Environmental Safety, Syngenta Crop Sciences, Greensboro, NC (2003)
- Developmental Neurotoxicity Testing: Future Directions, presented at the Center for Alternatives to Animal Testing (CAAT), Baltimore (2003)
- Short-term Exposure to an Environmental Mixture of PHAHs: Dose-Additive Effects on Serum Thyroxine, Presented at the 23rd Annual Meeting of the Society of Environmental Toxicology and Chemistry, Salt Lake City, UT (2002)
- Relevance of Developmental Neurotoxicity for Administrative Decisions of the US-EPA, Meeting on Developmental Neurotoxicity of Pyrethroids on 15th November 2001 in Brussels, European Commission. Brussels, Belgium (2001)

Disruption of Thyroid Hormones by Environmental Chemicals: Screening and Testing for Developmental Neurotoxicity, Presented at the Mid-Atlantic Ecology Division, US EPA, Duluth, MN (2000)
Developmental Neurotoxicity of Endocrine Disruptors: Focus on Thyroid, Children's Health and the Environment: Mechanisms and Consequences of Developmental Neurotoxicology, Seventeenth International Neurotoxicology Conference, Little Rock, AK (1999)

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Elected Office; Society of Toxicology - Neurotoxicology Specialty Section, Secretary/Treasurer (1996-2000); Vice-President Elect (2002); President (2003); Councilor (2004). International Neurotoxicology Association, Councillor (2003-present), American Treasurer (1993- present).
American Chemistry Council, Neurotoxicology Technical Implementation Panel Member (1999-present)
ILSI Risk Science Institute, Developmental Neurotoxicology Working Group Steering Committee (1999-2000), Developmental Neurotoxicology Working Group (2000); Developmental Neurotoxicology Working Group - Behavioral Toxicology Subcommittee (2004-present); Mechanism of Action Working Group (2003-present); Steering Committee Member Evaluation and Interpretation of Neurodevelopmental Endpoints for Human Health Risk Assessment (2003 - present).
OECD, Panel Member - Expert Consultation on Developmental Neurotoxicity (2000)
CIIT Centers for Health Research, Scientific Program Committee Member - CIIT Science Program review (2001-2002)
NIEHS, Organizing Committee: Workshop on "Thyroid Hormone and Brain Development: Translating Molecular Mechanisms to Population Risk, Organizing Committee (2002); Co-Chair: Workshop on "Thyroid Hormone and Brain Development: Translating Molecular Mechanisms to Population Risk", Co-Chair Session II Environmental Agents and Thyroid Endocrinology (2002)
Johns Hopkins Center for Alternatives to Animal Testing (CAAT), Co-Chair & Panel Member: Workshop "TestSmart--Endocrine Disruptors", Co-Chair and Panel Member for Breakout Group IV - In Vitro Assays for Disruption of the Thyroid Hormone System (2002)
InterAgency Committee on Neurotoxicology (ICON), Organizing Committee, Behavioral Test Methods Workshop (2002-2003)
TERA (Toxicology Excellence in Risk Assessment) (Crofton); Member, Voluntary Children's Chemical Evaluation Program - Decabromodiphenylether Peer Consultation Panel (2003); Member, Voluntary Children's Chemical Evaluation Program - Pentabromodiphenylether Peer Consultation Panel (2003) Member, Voluntary Children's Chemical Evaluation Program - Octabromodiphenylether Peer Consultation Panel (2003)
Learning Disabilities Association of America, Professional Advisory Board & Research Committee (2003-present)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Co-Author, Perchlorate Risk Assessment (1998-present)
Office of Prevention, Pesticides, and Toxic Substances, Consultant: Developmental neurotoxicity testing - data calls and data interpretation
Office of Pesticide Programs, Consultant: Thyroid hormone issues - testing protocols and data interpretation
Office of Pesticide Programs Consultant: Pyrethroid insecticides
Endocrine Disruptors Research NHEERL Implementation Plan (Divisional Representative) (1999 - present)
Team Member, Risk Forum - Point of Departure Workgroup (2003 - present)
Co-Chair, NHEERL Technical Qualification Board (promotions board) (2004-present)
Co-Chair, Goal 4 Safe Pesticides/Safe Products, Multi-year Plan Implementation Plan Team (2002-present)
Team Member, Goal 4 - Safe Pesticides/Safe Products, Multi-year Plan Implementation Plan Team (2002 - 2004)

PUBLICATIONS:

Shafer, T.J., Meyer, D.A., Crofton, K.M. (2005) Developmental neurotoxicity of pyrethroid insecticides: Critical review and future research needs. Environ. Hlth Perspect. (in press)

Crofton, K.M., Makris, S.L., Sette, W.F., Mendez, E., Raffaele, K.C. (2004) A qualitative retrospective analysis of positive control data in developmental neurotoxicity studies. Neurotox. Teratol. 26:345-352.

- Crofton, KM (2004) Developmental disruption of thyroid hormone: correlations with hearing dysfunction in rats. *Risk Anal.* 24:1665-1669.
- Mundy WR, Freudenrich TM, Crofton KM, DeVito MJ. (2004) Accumulation of PBDE-47 in Primary Cultures of Rat Neocortical Cells. *Toxicol Sci.* 82:164-169.
- Stoker, TE, Crofton, KM, Hedge, J, Ferrell, JM, Cooper, RL, Laws, SC. (2004) Assessment of DE-71, a commercial polybrominated diphenyl ether (PBDE) mixture, in the EDSP male and female pubertal protocols. *Tox. Sci.* 78:144-55.
- Craft, E.S., Ross, D.G., DeVito, M.J. and Crofton, K.M. (2002) Comparative responsiveness of hypothyroxinemia and hepatic enzyme induction in Long-Evans rats versus C57BL/6J mice exposed to TCDD-like and phenobarbital-like polychlorinated biphenyl congeners. *Toxicol. Sci.* 68:372-380.
- Lasky RE, Widholm JJ, Crofton KM, Schantz SL (2002) Perinatal exposure to Aroclor 1254 impairs distortion product otoacoustic emissions (DPOAEs) in rats. *Toxicol Sci.* 68:458-64.
- Taylor, M.M., Crofton, K.M. and MacPhail, R.C. (2002) Schedule-controlled behavior in rats exposed perinatally to the PCB mixture Aroclor 1254. *Neurotoxicol Teratol.* 24:511-518.
- Zhou, T. Taylor, M.M., DeVito, M.J. and Crofton, K.M. (2002) Development exposure to brominated diphenyl ethers results in thyroid hormone disruption. *Toxicol. Sci.* 66:105-116.
- Cory-Slechta, D.A., Crofton, K.M., Sheets, L.P., Ross, J.F., Weiss, B. and Foran, J.A. (2001) Methods to Identify and Characterize Developmental Neurotoxicity for Human Health Risk Assessment I: Behavioral Effects. *Environ. Hlth. Perspect.* 109 (Suppl. 1):79-92.
- Herr DW, Graff JE, Derr-Yellin EC, Crofton KM, Kodavanti PR. (2001) Flash-, somatosensory-, and peripheral nerve-evoked potentials in rats perinatally exposed to Aroclor 1254. *Neurotoxicol Teratol.* 23:591-601.
- Widholm, J.J., Clarkson, G.B. Strupp, B.S., Crofton, K.M., Seegal, R.F., Schantz, S.L. (2001) Spatial reversal learning in Aroclor 1254-exposed rats: Sex-specific deficits in associative ability and inhibitory control. *Toxicol. Appl. Pharmacol.* 174:188-98.
- Zhou, T. Ross, D.G, DeVito, M.J. and Crofton, K.M. (2001) Effects of short-term in vivo exposures to polybrominated diphenyl ethers on thyroid hormones and hepatic enzymatic activities in weanling rats. *Toxicol. Sci.* 61:76-82.
- Crofton, K.M., Kodavanti, P.R.S., Derr-Yellin, E.C., Casey, A.C. and Kehn, L.S. Thyroid hormones and ototoxicity in rats: Cross-fostering experiments demonstrate the influence of postnatal lactational exposure. *Toxicol. Sci.* 57:131-140, 2000.
- Crofton, K.M., Ding, D., Padich, R., Taylor, M. and Henderson, D. (2000) Hearing Loss following Developmental Exposure to Polychlorinated Biphenyls: A Cochlear Site of Action. *Hearing Research* 144:196-204, 2000.
- Gilbert, M.E., Mundy, W. And Crofton, K.M. (2000) Spatial learning and long-term potentiation in the dentate gyrus of the hippocampus in animals developmentally exposed to A1254. *Toxicological Sciences*, 57:102-111.
- Roegge, C.S., Medora, K., Seo, B.W., Crofton, K.M & Schantz, S.L. (2000) A comparison of maternal steady-state and gestation-lactation only exposure to Aroclor 1254 on radial-arm maze performance. *Toxicol. Sci.* 57:121-130.
- Zoeller, R.T. and Crofton, K.M. (2000). Thyroid Hormone Action in Fetal Brain Development and Potential for Disruption by Environmental Chemicals. *Neurotoxicology* 21:935-945.
- Crofton, K.M. and Rice, D.C. (1999) Perinatal exposure to PCB126: Thyroid hormones and ototoxicity. *Neurotoxicol. Teratol.* 21:299-301.

DeVito,M., Biegel,L., Brouwer,B., Brown,S., Brucker-Davis,F., Cheek,O., Christensen,R., Colborn,T., Cooke,P., Crissman,J., Crofton,K., Doerge,D., Gray,E., Hauser,P., Hurley,P., Kohn,M., Lazar,J., McMaster,S., McClainM., McConnell,E., Meier,C., Miller,R., Tietge,J., and Tyl,R. Screening Methods for Chemicals That Alter Thyroid Hormone Action, Function and Homeostasis Workshop. Environ Health Perspect 107:407-415 (1999)

Gilbert, M.E. and Crofton, K.M. (1999). Developmental exposure to a complex PCB mixture (Aroclor 1254) produces a persistent impairment in long-term potentiation in the dentate gyrus in vivo. Brain Research, 850: 87-95.

BIOGRAPHICAL SKETCH

NAME: Larry T. Cupitt

POSITION TITLE: Associate Director for Health

EDUCATION / TRAINING

Institution	Degree	Year	Field of Study
Belhaven College, Jackson, Mississippi	B.S.	1963-1967	Chemistry
Rice University, Houston, Texas	Ph.D.	1967-1972	Chemistry

PROFESSIONAL EXPERIENCE:

Associate Director for Health, National Exposure Research Laboratory, ORD, EPA	2000 - Present
Director, Human Exposure and Atmospheric Sciences Division, NERL, ORD, EPA	1997-2000
Director, Atmospheric Processes Research Division, NERL, ORD, EPA	1995-1997
Director, Methods Development Research Division, AREAL, ORD, EPA	1991-1995
Science Advisor to Sen. Daniel P. Moynihan (on assignment from EPA)	1990
Deputy Director (Acting), Atmospheric Sciences & Exposure Assessment Lab, ORD, EPA	1988-1989
Research Chemist, Atmospheric Sciences Research Lab, ORD, EPA	1979-1988
Manager of Research, Environmental Sciences & Engineering, Northrop Services, Inc.	1977-1979
Research Scientist, Environmental Sciences & Engineering, Northrop Services, Inc.	1975-1977
Officer, U. S. Army Missile Command (Laser Weapons research – post-doctoral)	1972-1975

SELECTED AWARDS AND HONORS:

- Bronze Medal for Commendable Service, 1995, for leadership and science contributions to the development of a Verifiable National UV Radiation Index that provides World-wide Protection of Human Health and the Environment.
- Scientific and Technological Achievement Award for research publication on “Exposure and Risk from Ambient Particle-bound Pollution in an Airshed Dominated by Residential Wood Combustion and Mobile Sources” (1994)
- Scientific and Technological Achievement Award for research publication on “Assessment of Impact of Transformation Products from the Photooxidation of Volatile Organic Compounds” (1993)
- Bronze Medal for Commendable Service, 1994, for outstanding work involved in a broad-based EPA effort to evaluate tropospheric ozone control policy in light of recent scientific findings.

INVITED LECTURES / SYMPOSIA (In the last 5 years):

- “Cumulative Risk Assessment Issues”, MIT Summer Symposium Series, Dedham, MA
- “Implications of PM Research on Exposures: Apportionment and Attribution of Effects”, International Society for Exposure Analysis, Stresa, Italy.
- “Implications of the US Clean Air Act on the Future of Urban Air Quality and Human Exposure”, European Commission Workshop on Urban Air, Indoor Environment and Human Exposure , Thessaloniki, Greece
- “Human Exposure Research at EPA’s National Exposure Research Laboratory”, International Society for Exposure Analysis, Athens, Greece.

ASSISTANCE / LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

- Peer Reviewer, National Science Foundation.
- Peer Reviewer, Environmental Science and Technology
- Peer Reviewer, Environmental Health Perspectives
- Peer Reviewer, Journal of Exposure Analysis and Environmental Epidemiology
- Peer Review Panel Member, Environmental Quality Basic Research Program, U.S. Army Research Office

ASSISTANCE / LEADERSHIP PROVIDED TO THE AGENCY:

Member, ORD Science Council

Science Advisor to Senator Daniel Patrick Moynihan and Senate Environment & Public Works Committee, during debate and passage of the Clean Air Act Amendments

Agency Technical Lead, multi-Agency Workgroup to develop nation-wide UV-B Index

Lead, Study Design Team, Integrated Air Cancer Project

Contributor, Staff Paper "An Examination of EPA Risk Assessment Principles and Practices"

Science Advisory Committee, Center on Airborne Organics

Co-chair, EPA Ozone Science Committee

Technical Advisor, Air Policy Branch, Office of Policy, Planning, and Evaluation, US EPA.

Member, Quality Science Team, National Performance Review.

BIOGRAPHICAL SKETCH

NAME: Michael DeVito

POSITION TITLE: Branch Chief

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Drew University	B.S.	1983	Chemistry
Rutgers University	M.S.	1988	Toxicology
Rutgers University	Ph.D.	1992	Toxicology

PROFESSIONAL EXPERIENCE:

2002-present: Branch Chief, PKB/NHEERL/ORD/ USEPA

1995-2002: Toxicologist, PKB/NHEERL/ORD/ USEPA

1992-1994: Post doctoral Fellow, UNC-CH

PROFESSIONAL SOCIETIES:

Society of Toxicology and North Carolina Society of Toxicology

American Association for the Advancement of Science

SELECTED AWARDS AND HONORS: (From 1998 to present)

USEPA Science Achievement Award USEPA, 2003

USEPA Scientific and Technological Achievement Award, Honorable Mention, 1999, 2001

INVITED LECTURES/SYMPOSIA: (Since 2001)

1. Screening for Thyroid Hormone Disruptors, presented at SCOPE/IUPAC International Symposium on Endocrine Active Substances, November 2002, Yokohama Japan.
2. Brominated Flame Retardants: Emerging Contaminants. Great Lakes Binational Toxics Strategy Annual meeting, Windsor Canada, May 2002.
3. The USEPA Dioxin Reassessment, Presented at the The American Public Health Association's 129th Annual Meeting, November, 2001, Atlanta Ga.
4. The Use of Body Burdens as a Dose Metric and Estimates of Margins of Exposures for Dioxins and Non-Dioxin-Like PCBs. Presented at The Ministry of the Environment, Tokyo Japan, September 18, 2001.
5. Non-cancer Dose Response Relationships for Dioxin Using BMDS Approach. The Ministry of the Environment, Tokyo Japan, September, 2001.
6. Influence Of Environmental Chemicals On Thyroid Hormones. NIES, Tsukuba Japan, September, 2001.
7. Effects of Brominated Diphenyl Ethers on Thyroid Hormones in a Short-term Screen and in Developmental Studies. *21th Symposium on Halogenated Environmental Organic Pollutants*, 2001, Kyongju Korea.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

1. North Carolina SOT Councilor 2002-2003
2. Editorial Board: Chemosphere (2001-2002)
3. Contract Review Panel for National Toxicology Program, NIEHS, 2001.
4. Reviewer, Northern Contaminants Program Proposal Peer Reviewer, Environment Canada, 1999 and 2001.
5. Reviewer, MRC Institute for Environment and Health document on *Soil Standards for Dioxins*, 2000.
6. Michigan Environmental Science Board's Children's Standards Panel, 1999.
7. World Health Organization, Scientific and Technical Evaluation Workshop on Persistent Manufactured Chemicals for Non-pesticide Applications and Persistent By-products of Industrial and Combustion Processes, Geneva Switzerland, January 11-15, 1999.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

1. Dioxin Reassessment: Primary author: Toxicity Equivalence Factors (TEF) for Dioxin and Related Compounds. In Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-*p*-Dioxin (TCDD) and Related Compounds Part II: Health Assessment for 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD) and Related Compounds. EPA/600/P-00/001Be. Secondary Author on 3 other chapters.
2. Framework for Application of the Toxicity Equivalence Methodology for Polychlorinated Dioxins, Furans

- and Biphenyls in Ecological Risk Assessment" Risk Forum Report (Contributing Author).
3. Proteomics Coordinator, NHEERL Genomics and Proteomics Committee (2002 - present)
 4. Endocrine Implementation Planning Committee, 2000-present
 5. Organizing committee, 5th NHEERLSymposium, June 2000,
 6. Organizing committee, NHEERL Synergy workshop on extrapolation, 1999.

PUBLICATIONS (From January 1, 1999 to present, 19 out of a total of 46 publications):

1. DeVito, MJ et al., Workshop Report "Screening methods for chemicals that alter thyroid hormone action, function and homeostasis". *Environ Health Persp* 107:407-414, 1999.
2. Hurst HH, DeVito MJ, Setzer RW, and Birnbaum, LS. Acute administration of 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) in pregnant Long Evans rats: Association of measured tissue concentrations with developmental effects. *Toxicol. Sci.* 53(2):411-20, 2000.
3. Wang X, Santostefano, MJ, DeVito, MJ, and Birnbaum, LS. Extrapolation of a PBPK model for dioxin across dosage regimen, gender, strain and species. *Toxicol Sci.* 56(1):49-60, 2000.
4. DeVito, MJ, Diliberto, JJ, Ross, DG, Menache, MG, and Birnbaum, LS. Dose-response relationships for polychlorinated biphenyls following subchronic treatment in mice: CYP1A1 and CYP1A2 enzyme activity in liver, lung and skin. *Toxicol Appl. Pharmacol.* 167(3):157-72, 2000.
5. Hurst, CH, DeVito, MJ, Birnbaum, LS. Tissue disposition of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) in maternal and developing long evans ras following subchronic exposure. *Toxicol Sci.* 57(2):275-83, 2000.
6. Johnson, CW, Williams, WH, Copeland, CB, DeVito, MJ, and Smialowicz, RJ. Sensitivity of the SRBC PFC Assay vs ELISA for Detection of Immunosuppression by TCDD and TCDD-Like Congeners. *Toxicology* 156:1-11, 2000.
7. Zhou, T, Ross, DG, DeVito, MJ, and Crofton, KM. Effects of short-term in vivo exposures to polybrominated diphenyl ethers on thyroid hormones and hepatic enzymatic activities in weanling rats. *Toxicol Sci.* 61(1):76-82, 2001 .
8. DeVito, MJ, and Schecter A. Estimates of TCDD exposure through the use of tampons and diapers. *Environ Health Persp.*, *Environ Health Perspect* 110:23-28 2002.
9. Leavens, TL, Sparrow, BR, and DeVito, MJ. Antiandrogenic effects and disposition of 2,2-bis-(4-chlorophenyl)-1,1-dichloroethylene (p,p'-DDE) in adult male rats. *Toxicology* 2002 May 24;174(2):69-78..
10. Zhou, T, Taylor, MM, DeVito, MJ, and Crofton, KM. Developmental exposures to brominated diphenyl ethers results in thyroid hormone disruption. *Toxicol. Sci.* 2002 Mar;66(1):105-16
11. Craft E, DeVito, MJ and Crofton, KM. Comparative responsiveness of hepatic enzyme induction and hypothyroxenemia in long-evans rats versus c57bl/6j mice exposed to TCDD-like and phenobarbital-like polychlorinated biphenyl (PCB) congeners. *Toxicol Sci* 2002 Aug;68(2):372-80.
12. Brown DJ, Overmieire IV, Goeyens, L, Denison MS, DeVito, MJ and Clarkm GC. Analysis of Ah receptor pathway activation by brominated flame retardants. *Chemosphere* (in press).
13. Abbott BD, Buckalew AR, DeVito MJ, Ross D, Bryant PL, Schmid JE. EGF and TGF-alpha expression influence the developmental toxicity of TCDD: dose response and AhR phenotype in EGF, TGF-alpha, and EGF + TGF-alpha knockout mice. *Toxicol Sci.* 2003 Jan;71(1):84-95.
14. Emond C, Birnbaum LS, DeVito MJ. Physiologically Based Pharmacokinetic Model for Developmental Exposures to TCDD in the Rat. *Toxicol Sci.* 2004 Jul;80(1):115-33.
15. Mundy WR, Freudenrich TM, Crofton KM, DeVito MJ. Accumulation of PBDE-47 in primary cultures of rat neocortical cells. *Toxicol Sci.* 2004 Nov;82(1):164-9.
16. Staskal DF, Diliberto JJ, DeVito MJ, Birnbaum LS. Toxicokinetics of BDE 47 in Female Mice: Effect of Dose, Route of Exposure, and Time. *Toxicol Sci.* 2004 Oct 27; [Epub ahead of print]

BIOGRAPHICAL SKETCH

NAME: Kathleen (Kacee) Deener

POSITION TITLE: Environmental Health Scientist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Erskine College, Due West, SC	B.S.	1989-1993	Chemistry and French
Johns Hopkins School of Public Health, Baltimore, MD	MPH	1999-2003	Public Health with focus on Environmental Health, Risk Assessment, and Policy

PROFESSIONAL EXPERIENCE

Environmental Health Scientist, USEPA, National Center for Environmental Research 2001 - Present
Environmental Analyst, Alcoa Eastalco Works, Frederick, MD 1996 - 2001

PROFESSIONAL SOCIETIES

American Public Health Association (2002-2004)

SELECTED AWARDS AND HONORS

Omicron Delta Kappa Academic Honor Society
Superior Accomplishment Recognition Award (2001, 2002, 2003)
Selected for an Embassy Science Fellowship (through the State Department) in Lima, Peru (2003)
Brookings Institute LEGIS Fellow - Accepted for 2005

INVITED LECTURES/SYMPOSIA

EPA's Extramural Biomarkers Research. Invited speaker, George Washington University School of Public Health, Washington, DC (November 2004)

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY

1. Researched chemical exposure and effects and developed tables for: *Strengthening the Role of Environmental Public Health at U.S. Air Force Bases: Prevention, Evaluation and Response* (Submitted for publication). John Hopkins Bloomberg School of Public Health Risk Sciences and Public Policy Institute.
2. EPA Regional Risk Assessors Meeting, Boston, MA (May 2004) - Poster Presentation: *Biomarkers Research: Basic Sciences, Validation and Application*.
3. ORD Science Forum, Washington, DC (June 2004) - Poster Presentation: *Biomarkers Research: Basic Sciences, Validation and Application*
4. Mentor, EnvironMentors Program, Washington, DC (2004-2005)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY

1. Participant, Human Health Multi-Year Plan working group (2001 - present)
2. Author, Children's Vulnerability to Toxic Substances in the Environment Request for Applications (2002)
3. Author, Biomarkers for the Assessment of Exposure and Toxicity in Children Request for Applications (2002)
4. Author, Biomarkers for Environmental Health and Risk Assessment Request for Applications (2003)
5. Organizer, Science To Achieve Results Human Health Symposium (April 2003, Washington, DC)

6. Co-Author, Early Indicators of Environmentally Induced Disease Request for Applications (2004)
7. Organizer, Science To Achieve Results Human Health Symposium (October 2004, Philadelphia, PA)

BIOGRAPHICAL SKETCH

NAME: Janet J. Diliberto
EDUCATION/TRAINING

POSITION TITLE: Research Biologist

Institution	Degree	Year	Field of Study
Roberts Wesleyan College, Rochester, NY	B.A.	1960	Biology
University of Rochester Graduate School, Rochester, NY		1961-62	Pharmacology

PROFESSIONAL EXPERIENCE:

1990-present Research Biologist (Principal Investigator), Pharmacokinetics Branch, Experimental Toxicology Division, NHEERL, US EPA, RTP, NC
1986-1990 Research Biologist, Chemical Disposition Group, Systemic Toxicology Branch, National Toxicology Program, NIEHS, RTP, NC
1980-1986 Biological Laboratory Technician, Laboratory of Pharmacology, Division of Intramural Research, NIEHS, RTP, NC
1960-1970 Technical Associate, Pharmacology Department, University of Rochester Medical School, Rochester, NY

PROFESSIONAL SOCIETIES:

North Carolina Chapter, Society of Toxicology

SELECTED AWARDS AND HONORS:

1999 Scientific and Technological Achievement Award, Level II, ORD, US EPA, RTP, NC
2000 Scientific and Technological Achievement Awards (2 Honorable Mentions), ORD, US EPA, RTP, NC

INVITED LECTURES/SYMPOSIA:

2000 National Institute of Environmental Studies (NIES; Environment Agency of Japan), Tsukuba, Japan
2000 Workshop on Knockout Mice, Japanese Society of Toxicology Meeting, Yokohama, Japan

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

2002-present Member of the International Life Sciences Institute (ILSI) Health and Environmental Sciences Institute (HESI) Agricultural Chemicals Safety Assessment Subcommittee ADME Task Force and Liaison to the Life-Stages Task Force.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

1998 Delegate (sponsored by the Gore-Chenobyl Commission) to Third North American-Russian Workshop on Joint Actions to Reduce Dioxin and Dioxin-related Compounds, Lake Baikal, Siberia

PUBLICATIONS (From January 1, 1999 to present, out of a total of 45 publications):

Abbott, B.D., Buckalew, A. R., Diliberto, J. J., Wood, C. R., Held, G., Pitt, J. A., and Schmid, J. E. (1999) AhR, ARNT, and Cyp1A1 mRNA quantitation in cultured human embryonic palates exposed to TCDD and comparison with mouse palate in vivo and in culture. *Toxicological Sciences* 47: 62-75.

Abbott, B.D., Schmid, J. E., Pitt, J. A., Buckalew, A. R., Wood, C. R., Held, G. A., and Diliberto, J. J. (1999) Adverse reproductive outcomes in the transgenic Ah receptor-deficient mouse. *Toxicology and Applied Pharmacology* 155:62-70.

Diliberto, J. J., Burgin, D., and Birnbaum, L. S. (1999) Effects of CYP1A2 on disposition of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin, 2,3,4,7,8-pentachlorodibenzofuran, and 2,2',4,4',5,5'-hexachlorobiphenyl in CYP1A2 knockout and parental (C57BL/6N and 129/Sv) strains of mice. *Toxicology and Applied Pharmacology* 159:52-64.

Slezak, M.P., Diliberto, J. J., and Birnbaum, L. S. (1999) 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin-mediated oxidative stress in CYP1A2 knockout (CYP1A2^{-/-}) mice. *Biochemical and Biophysical Research Communications* 264:376-379.

Slezak, B. P., Hatch, G. G., DeVito, M. J., Diliberto, J. J., Slade, R., Crissman, K., Hassoun, E., and Birnbaum, L. S. (2000) Oxidative stress in female B6C3F1 mice following acute and subchronic exposure to 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD). *Toxicological Sciences* 54:390-398.

DeVito, M. J., Menache, M. G., Diliberto, J. J., Ross, D. G., and Birnbaum, L. S. (2000) Dose-response relationships for induction of CYP1A1 and CYP1A2 enzyme activity in liver, lung, and skin in female mice following subchronic exposure to polychlorinated biphenyls. *Toxicology and Applied Pharmacology* 167:157-172.

Diliberto, J. J., DeVito, M. J., Ross, D. G., and Birnbaum, L. S. (2001) Subchronic exposure of [³H]2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD) in female B6C3F1 mice: Relationship of steady-state levels to disposition and metabolism. *Toxicological Sciences* 61, 241-255.

Burgin, D. E., Diliberto, J. J., Derr-Yellin, E. C., Kannan, N., Kodavanti, P. R. S., and Birnbaum, L. S. (2001) Differential effects of two lots of Aroclor 1254: Enzyme induction, thyroid hormones, and oxidative stress. *Environmental Health Perspectives* 109, 1163-1168.

Birnbaum, L. B., Staskal, D., and Diliberto, J. J. (2003) Health effects of polybrominated dibenzo-*p*-dioxins (PBDDs) and dibenzofurans (PBDFs). *Environment International* 29:Issue 6, 855-860.

Smialowicz, R.J., Burgin, D.E., Williams, W.C., Diliberto, J.J., Setzer, R.W., and Birnbaum, L.S. (2004) CYP1A2 is not required for 2,3,7,8-tetrachlorodibenzo-*p*-dioxin-induced immunosuppression. *Toxicology* 197(1), 15-22.

Staskal, D. F., Diliberto, J. J., DeVito, M. J., and Birnbaum, L. S. (In press) Toxicokinetics of BDE 47 in female mice: Effect of dose, route of exposure, and time. *Toxicological Sciences*.

BIOGRAPHICAL SKETCH

NAME: **David J. Dix**

POSITION TITLE:

Research Biologist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Illinois at Chicago	B.S.	1985	Biological Sciences
Rush University, Chicago, Illinois	Ph.D.	1990	Physiology
North Carolina State University, Raleigh	Post-doc	1990-1992	Biochemistry
National Institute of Environmental Health Sciences, RTP, NC	Post-doc	1992-1995	Reproductive/Developmental Toxicology

PROFESSIONAL EXPERIENCE

2004-present Lead Research Biologist, Genomic Effects Team, GEEBB, RTD/NHEERL/ORD, U.S. EPA, RTP, NC.

2001-present Adjunct Assistant Professor, Department of Molecular and Environmental Toxicology, North Carolina State University, Raleigh, NC.

1997-1998 Adjunct Assistant Professor, Department of Biology, North Carolina Central University, Raleigh, NC.

1995-2004 Research Biologist, Gamete and Early Embryo Branch, Reproductive Toxicology Division, National Health and Environmental Effects Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, RTP, NC.

1992-1995 Intramural Research Fellow, Laboratory of Reproductive and Developmental Toxicology, National Institute of Environmental Health Sciences, Research Triangle Park, NC (mentor: Dr. E.M. Eddy).

1990-1992 Postdoctoral Research Associate, Department of Biochemistry, North Carolina State University, Raleigh, NC (mentor: Dr. Elizabeth Theil).

SELECTED AWARDS AND HONORS (from past 5 years)

2000 Superior Accomplishment Recognition Award (SARA) from U.S. EPA for organizing NHEERL Array User's Group and facilitating NHEERL's foray into genomics.

2001 SARA for developing *hsp70-1/hsp70-3* gene knockout mice.

2001 SARA for leadership in launching toxicogenomics effort in RTD.

2002 SARA for developing a process to build the infrastructure necessary for NHEERL research to advance in genomics and proteomics.

2003 SARA for extraordinary efforts in the development and implementation of genomics, proteomics, and bioinformatics capabilities within NHEERL.

2003 SARA for outstanding teamwork in producing NHEERL's first multiyear implementation plan for human health research.

2003 Scientific and Technological Achievement Award (honorable mention) from U.S. EPA for "DNA Arrays to Monitor Gene Expression in Rat Blood and Uterus Following 17- β -estradiol Exposure - Biomonitoring Environmental Effects Using Surrogate Tissues".

2004 SARA for papers on gene expression profiling and microarray data analysis.

2004 Promotion to Genomic Effects Team Leader (GS-14).

2004 SARA for development of mouse testis array, publication of research paper.

INVITED LECTURES/SYMPOSIA (selected from a total of 26 in past 5 years)

1. Center for Molecular Medicine and Genetics, Wayne State University, Detroit, MI, 2000. "Application of DNA microarrays to reproductive toxicology and development of a testis chip."

2. Center for Ecogenetics and Environmental Health, University of Washington, Seattle, WA, 2000. "Application of DNA microarrays to reproductive toxicology and development of a testis chip."

3. Gender Differences in Reproductive Biology and Toxicology Symposium, University of Arizona, Tucson, AZ, 2000. "Application of DNA microarrays to reproductive toxicology and the development of a Testis Array."

4. Developing an OPPTS Vision for Toxicogenomics, U.S. EPA, RTP, NC, 2001. "NHEERL's Genomics and Proteomics Program Steering Committee".

5. Frontiers in Reproduction Symposium 2001, Cambridge, MA. "Expression Profiling to Identify Genes Critical for Male Fertility."
6. U.S. EPA Review of Pilot Studies for the National Children's Study, RTP, NC, 2001. "Biomarkers of Response for Assessing Potential Sensitivity of Children to Adverse Health Outcomes from Environmental Exposures".
7. Japan National Institute of Environmental Science/U.S. EPA International Workshop on Endocrine Disrupters, Tsukuba, Japan, 2001. "Biomonitoring the toxicogenomic response to EDCs in humans, laboratory species, and wildlife."
8. Toxicogenomics International Forum 2001, National Institute of Health Sciences, Tokyo, Japan. "Gene Expression Profiling to Identify Mechanisms of Male Reproductive Toxicity."
9. Department of Animal Science, North Carolina State University, Raleigh, NC, 2002. "Gene expression profiling to identify mode of action for male reproductive toxicants".
10. American College of Toxicology annual meeting, 2002, Hershey, PA. "Application of genomics to reproductive toxicology: working from research towards risk assessment".
11. ORD Internal Workshop on Computational Toxicology, U.S. EPA, RTP, NC, 2002. "Current Focus of NHEERL's Genomics and Proteomics Research".
12. NHEERL Workshop on Computational Toxicology, U.S. EPA, RTP, NC, 2002. "Principles and Examples of Computational Toxicology Research".
13. U.S. EPA Review of Pilot Studies for the National Children's Study, RTP, NC, 2002. "Use of Biomarkers of Response for Assessing Potential Sensitivity of Children to Adverse Health Outcomes from Exposure to Environmental Chemicals".
14. U.S. EPA NCEA Genomics and Risk Assessment Colloquium, Alexandria, VA, 2003. "Integration of Toxicogenomics and Risk Assessment".
15. U.S. EPA- U.S. Triazole Task Force joint research meeting, 2003, RTP, NC. "Project 1: Profiling of toxic effects, P450s, and gene expression in multiple tissues following conazole exposures in adult male rats and mice", and "Project 3: EPA Rat Developmental Conazole Study".
16. U.S. EPA Region 10/ORD Genomics Seminar Series, 2003, Seattle, WA. "Integration of Toxicogenomics and Risk Assessment".
17. Society of Toxicology annual meeting, 2003, Salt Lake City, UT. "Genomic and Proteomic Analysis of Surrogate Tissues for Assessing Toxic Exposures and Disease States".
18. U.S. EPA and NIEHS CEBS-Metabonomics Collaboration Workshop, Aug31-Sept01, 2004, RTP, NC. "Integrating Genomics and Metabonomics: the ORD Conazole Pilot Project".
19. U.S. EPA (ORD and OPP) and U.S. Triazole Task Force joint research meeting, Nov09, 2004, RTP, NC. "Overview of Past, Present and Future Conazole Studies Focused on Reproductive Effects", and "Reproductive Effects of Exposure to Conazole Fungicides in the Male Rat".

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY(selected from past 5 years)

2000-present: mentorship of two graduate students and five postdoctoral fellows.

2001: Reviewer, National Institute of Environmental Health Sciences RFA for Toxicogenomics Research Consortium centers of the National Center for Toxicogenomics.

2001- present: Science advisory board, Bioinformatics Research Center, North Carolina State University.

2003: participant, WHO/ICSP Workshop on Toxicogenomics and the Risk Assessment of Chemicals for the Protection of Human Health, Berlin, Germany.

2002-3: organizer and co-chair, Innovations in Applied Toxicology symposium, Society of Toxicology annual meeting 2003, Salt Lake City, UT. "Genomic analysis of surrogate tissues for measuring toxic exposures and drug action".

2004: workgroup co-chair, SETAC-SOT Pellston Workshop on Emerging Molecular and Computational Approaches for Cross-Species Extrapolations, Portland, OR.

2004-present: member, Program Committee for Society for the Study of Reproduction 2005 annual meeting.

2004-present: member, External Advisory Committee, Duke University Superfund Basic Research Center.

2004-present: member, Science Advisory Board, Center of Excellence- Paternal Impact of Toxicological Exposure, Wayne State University, Detroit, MI.

2004-present: organizer and co-chair, symposium at Society of Toxicology annual meeting 2005, New Orleans, LA. "Beyond Liver Toxicogenomics: Gene Expression Based Biomarkers in Non-Hepatic Tissues".

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY (selected from past 5 years)

2000-2003: investigator, Cooperative Research and Development Agreement (CRADA) with Clontech Inc. to develop rat, mouse and human DNA microarrays.

2000-2002: coordinator, NHEERL Molecular Profiling Group.

2000-2002: member, NHEERL Genomics and Proteomics Program steering committee.

2000-present: member, NHEERL Human Health Research Implementation Committee.

2001-2002: investigator, EPA pilot project for the National Children's Study.

2001-2002: Project Officer, contracts for purchase of rat and mouse DNA oligonucleotides for producing microarrays for Health Divisions of NHEERL.

2002-2003: Genomics Coordinator, NHEERL Genomics and Proteomics Committee.

2002-2003: Principal Investigator, Materials CRADA with Duke University to produce mouse and human DNA microarrays for NHEERL.

2003-2004: Project Officer, contract for rat DNA microarray printing services for Health Divisions of NHEERL.

2003-present: Project Officer, GeneChip processing contract for ORD/NHEERL.

2004-present: Principal Investigator, Materials CRADA with Affymetrix Corp. to develop *in vitro* toxicogenomics.

2004-present: Principal Investigator and Project Manager, CRADA with Pfizer Inc. to develop sperm RNA analysis as predictor for reproductive toxicity.

2004-present: member, NHEERL Computational Toxicology Implementation Committee.

2004-present: Project Officer, contract for *in vivo* toxicogenomics services for ORD Computational Toxicology program.

2004-present: Co-Chair, Genomics Task Force Data Analysis Workgroup of EPA Science Policy Council.

PUBLICATIONS (12 selected from a total of 23 papers, 5 reviews/chapters published in last 5 years)

1. Rockett, JC, DJ Dix. DNA arrays: technology, options and toxicological applications. *Xenobiotica*, **30**, 155-177, 2000.

2. Rockett JC, JC Luft, JB Garges, SA Krawetz, MR Hughes, DJ Dix. Development of a 950-gene DNA array for examining gene expression patterns in mouse testis. *Genome Biol* 2(4):research0014.1-0014.9, 2001.

3. Rockett JC, FL Mapp, JB Garges, JC Luft, C Mori, DJ Dix. The effects of hyperthermia on spermatogenesis, apoptosis, gene expression and fertility in adult male mice. *Biol Reprod* **65**, 229-239, 2001.

4. Dix DJ. Gene Expression Profiling to Identify Mechanisms of Male Reproductive Toxicity. In Inoue and Pennie (eds): *Toxicogenomics*, Springer-Verlag, Tokyo, 2002.

5. Ostermeier GC, DJ Dix, D Miller, P Khatri, SA Krawetz. Spermatozoal RNA profiles of normal fertile men. *Lancet*, 360, 772-777, 2002.

6. Rockett JC, RJ Kavlock, C Lambright, L Parks, JE Schmid, VS Wilson, C Wood, DJ Dix. DNA arrays to monitor gene expression in rat blood and uterus following 17-beta-estradiol exposure – biomonitoring environmental effects using surrogate tissues. *Toxicological Sciences*, 69, 49-59, 2002.

7. Richburg, JH, Johnson, K, Schoenfeld, HA, Meistrich, ML and Dix, DJ (2002). Defining the cellular and molecular mechanisms of toxicant action in the testis. *Toxicology Letters* 135: 167-183.

8. Bao W, JE Schmid, AK Goetz, H Ren, DJ Dix (2004). A database for tracking toxicogenomic samples and procedures. *Reproductive Toxicology*, (in press).

9. Rockett JC, ME Burczynski, AJ Fornace Jr, PC Herrmann, SA Krawetz, DJ Dix (2004). Surrogate tissue analysis: monitoring toxicant exposure and health status of inaccessible tissues through the analysis of accessible tissues and cells. *Toxicology and Applied Pharmacology* 194:189-199.

10. Rockett JC, P Patrizio, JE Schmid, NB Hecht, DJ Dix (2004). Gene expression patterns associated with infertility in humans and rodent models. *Mutation Research*, 549:225–240.

11. Sun G, S-F Thai, DB Tully, G Lambert, AK Goetz, DC Wolf, DJ Dix, S Nesnow (2004). Propiconazole-induced cytochrome P450 gene expression and enzymatic activities in rat and mouse liver. *Toxicol Letters* (in press).
12. Tully DB, JC Luft, JC Rockett, H Ren, JE Schmid, CR Wood, DJ Dix (2004). Reproductive and genomic effects in testes from mice exposed to the water disinfectant byproduct bromochloroacetic acid. *Reproductive Toxicology*, (in press).

BIOGRAPHICAL SKETCH

NAME: Peter Paul Egeghy
EDUCATION/TRAINING

POSITION TITLE: Environmental Health Scientist

Institution	Degree	Year	Field of Study
University of California, Berkeley, CA	B.A.	1986-1990	Physical Environmental Sciences
California State University, Northridge, CA	M.S.	1991-1994	Industrial Hygiene
University of California, Berkeley, CA	M.P.H.	1992-1993	Environmental Health
National Institute of Environmental Health Sciences	Predoc	1999-2001	Biostatistics Traineeship
University of North Carolina, Chapel Hill, NC	Ph.D.	1996-2001	Environmental Sciences and Engineering

PROFESSIONAL EXPERIENCE:

Environmental Health Scientist. HEASD, NERL, USEPA. Sep. 2001 - Present
Assistant Environmental Health and Safety Manager. Olive View-UCLA Medical Center, Los Angeles, CA. May 1994 - Aug. 1996

SELECTED AWARDS AND HONORS:

Recipient: USEPA Special Accomplishment Recognition Award (EDRB), for contributions to the Exposure and Dose Research program. 2004.
Recipient: USEPA Special Accomplishment Recognition Award (EDRB), for contributions to the National Human Exposure Assessment Survey (NHEXAS) program. 2003.
Recipient: USEPA Special Accomplishment Recognition Award (EMAB), for contributions to the children's exposure measurement program. 2003.

INVITED LECTURES/SYMPOSIA:

Ambient Air and Breath Sampling Methods. International Conference on JP-8 Jet Fuel. San Antonio, Texas, August 7 - 10, 2001.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Invited participant in the ILSI HESI Biomonitoring Workshop. September 21-22, 2004, in Research Triangle Park, North Carolina.
Section Presenter, Biological Monitoring in Exposure Assessment. ISEA Exposure Assessment and Epidemiology Workshop. November 4 - 8, 2001, in Charleston, South Carolina.
Reviewer for Annals of Occupational Hygiene.
Teaching Assistant, Department of Environmental Sciences and Engineering, University of North Carolina. August 1996 - May 1997, Chapel Hill, North Carolina.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member and Poster Lead, ORD Human Health Program Review Team (2004-Present).
Member, PM Supersites STN and IMPROVE Method Intercomparison Team (2003-Present).
Member, USEPA HEASD Data Analysis Committee (2002-Present).
Invited Participant, State of EPA Mercury Science Teleconference Workshop Series (August 2004).
Member, USEPA/CDC NHANES Biomarker Interpretation Committee (2002-2004).
Member, NERL/NHEERL/OPP Safe Foods Project (Development of Methods, Data, and a Model of Human Cumulative Exposure, Dose, and Health Risks for Pyrethroid Insecticides), (2003-2004).
Invited Participant in the Exposure Research Needs for Addressing Cumulative Risk: Mini Workshop. February 25, 2004, in Research Triangle Park, North Carolina.

Participant in the Team Building Team Leadership Seminar. Western Management Development Center. August 18 - 22, 2003, in Denver, CO.

Invited participant in the ORD Leadership Summit ("Igniting Leadership at All Levels"). January 12 - 16, 2003, in Baltimore, MD.

Invited Participant in the USEPA HEASD Human Exposure and Dose Modeling Workshop. October 16-17, 2002 in Research Triangle Park, North Carolina.

PUBLICATIONS

1. Egeghy PP, Quackenboss JJ, Catlin S, Ryan PB. Determinants of Temporal Variability in NHEXAS-Maryland Environmental Concentrations, Exposures, and Biomarkers. *J Expo Anal Environ Epidemiol* (*in press*).
2. Serdar B, Egeghy PP, Gibson R, Rappaport SM. Dose-dependent production of urinary naphthols among workers exposed to jet fuel (JP-8). *Am J Ind Med*. 2004 Sep;46(3):234-44.
1. Egeghy PP, Hauf-Cabalo L, Gibson R, Rappaport SM. Benzene and naphthalene in air and breath as indicators of exposure to jet fuel. *Occup Environ Med*. 2003 Dec;60(12):969-76.
2. Serdar B, Egeghy PP, Waidyanatha S, Gibson R, Rappaport SM. Urinary biomarkers of exposure to jet fuel (JP-8). *Environ Health Perspect*. 2003 Nov;111(14):1760-4.
3. Rhodes AG, LeMasters GK, Lockey JE, Smith JW, Yiin JH, Egeghy P, Gibson R. The effects of jet fuel on immune cells of fuel system maintenance workers. *J Occup Environ Med*. 2003 Jan;45(1):79-86.
4. Egeghy PP, Nylander-French L, Gwin KK, Hertz-Picciotto I, Rappaport SM. Self-collected breath sampling for monitoring low-level benzene exposures among automobile mechanics. *Ann Occup Hyg*. 2002 Jul;46(5):489-500.
5. Egeghy PP, Tornero-Velez R, Rappaport SM. Environmental and biological monitoring of benzene during self-service automobile refueling. *Environ Health Perspect*. 2000 Dec;108(12):1195-202.

BIOGRAPHICAL SKETCH

NAME: Marina Evans

POSITION TITLE: Environmental Health Scientist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Virginia	B.S.	1980	Engineering Science
University of Virginia	M.S.	1981	Biomed Engineering
University of Virginia	Ph.D.	1987	Biomed Engineering

PROFESSIONAL EXPERIENCE:

1993 - present Biomedical Engineer at the US EPA in RTP , NC.
1991-1993 Postdoctoral Fellow - Center for Environmental Medicine and Lung Biology at UNC, Chapel Hill, NC.
1989-1990 Research Analyst - Reproductive Hormone Lab, Duke University.
1988-1989 Research Associate - Neurobiology Dept., Duke University.
1986 Instructor - UNC Charlotte, Dept. of Electrical Engineering.

PROFESSIONAL SOCIETIES:

2002 - 2004 Councilor, Biological Modeling Specialty Section (SOT)
1997 - present Biomedical Engineering Society
1993 - present Society of Toxicology
1980 - present Tau Beta Pi Engineering Honorary Society

SELECTED AWARDS AND HONORS:

STAA Award 2000.
NHEERL Award for Outstanding Work in 2002.

INVITED LECTURES/SYMPOSIA:

Regular presenter at SOT's Annual Meetings since 1994.
1998 - 1999 Invited guest lecturer for PBPK modeling at UNC for Toxicology course.
1999 - Speaker at Bioengineering Conference in Montana
1999 - Sensitivity analysis seminar at NC State

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Co-founder of the Biological Modeling Specialty Section (BMSS) for SOT.
Serving as Councilor in BMSS for three years.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member of malathion workgroup for application of PBPK to risk assessment.
Member of carbamate workgroup for cumulative risk assessment.
Member of pyrethroid workgroup for cumulative risk assessment.

PUBLICATIONS (From January 1, 1999 to present):

Evans, M.V., and Andersen, M.E. (2000). Sensitivity analysis of a physiological model for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD): Assessing the impact of specific model parameters on sequestration in liver and fat in the rat. *Toxicological Sciences*.54:71-80.

Boyes, W.K., Bushnell, P.J., Crofton, K.M., Evans, M.V., and Simmons, J.E. (2000). Neurotoxic and Pharmacokinetic responses to trichloroethylene as a function of exposure scenario. *Environmental Health Perspectives*. 108:317-322.

Easterling, M.R., Evans, M.V., and Kenyon, E.M. (2000). Comparative analysis of software for physiologically based pharmacokinetic modeling: simulation, optimisation and sensitivity analysis. *Toxicology Methods*. 10:203-229.

Kenyon, E.M., Fea, M., and Evans, M.V. (2001). Application of modeling techniques to the planning of in vitro arsenic pharmacokinetic studies. *Alternative to Laboratory Animals*. 29:15-33.

Evans, M.V. and Eklund, C.R. (2001). A graphical application of sensitivity analysis for gas uptake experiments using chloroform as an example. *Toxicology Methods*. 11:1-13.

Evans, M.V., Boyes, W.K., Simmons, J.E., Litton, D.K., and Easterling, M.R. (2002). A comparison of Haber's rule at different ages using a physiologically based pharmacokinetic (PBPK) model for chloroform in rats. *Toxicology*. 176:11-23.

Albanese, R.A., Banks, H.T., Evans, M.V., and Potter, L.K. (2002). Physiologically based pharmacokinetic models for the transport of trichloroethylene in adipose tissue. *Bulletin of Mathematical Biology*. 64:97-131.

Simmons, J.E., Boyes, W.K., Bushnell, P.J., Raymer, J.H., Limsakun, T., McDonald, A., Sey, Y.M., and Evans, M.V. (2002). A physiologically-based pharmacokinetic model for trichloroethylene in the Long Evans rat. *Toxicological Sciences*. 69:3-15.

Easterling, M.R., Evans, M.V., and Kenyon, E.M. (2002). Pharmacokinetic modeling of arsenite uptake and metabolism in hepatocytes – Mechanistic insights and implications for further experiments. *J Pharmacokinetics and Pharmacodynamics*. 29:207-234.

Boyes WK, Bercegeay M, Ali JS, Krantz T, McGee J, Evans M, Raymer JH, Bushnell PJ, Simmons JE. (2003). Dose-based duration adjustments for the effects of inhaled trichloroethylene on rat visual function. *Toxicol. Sci*. 76:121-30.

Tornero-Velez, R., Ross, M.K., Granville, C., Laskey, J., DeMarini, D.M., and Evans, M.V. (2004). Metabolism and Mutagenicity of Source Water Contaminants 1,3-dichloropropane and 2,2-dichloropropane. *Drug Metabolism and Disposition*. 32:123-131.

Lipscomb, JC, Barton, HA, Tornero-Velez, R, Evans, MV, Alcasey, A, Snawder, JE and Laskey, J. 2004. The Metabolic Rate Constants and Specific Activity of Human and Rat Hepatic Cytochrome P450 2E1 Toward Toluene and Chloroform. *Journal of Toxicology and Environmental Health (Part A)* 67:537-553.

Himmelstein MW, Carpenter SC, Evans MV, Hinderliter PM, Kenyon EM.(2004). Kinetic Modeling of (beta)-Chloroprene Metabolism: II. The Application of Physiologically Based Modeling for Cancer Dose Response Analysis. *Tox. Sciences*. 79:28-37

Isaacs, K.K., Evans, M.V., and Harris, T.R. (2004). Visualization-based analysis for a mixed inhibition binary PBPK model: Determination of inhibition mechanism. *J Pharmacokinetic Pharmacodyn*. 31:215-42.

Boyes, W.K, Evans, M.V., Eklund, C.R., and Simmons, J.E. Duration adjustment of acute exposure guideline level values for trichloroethylene using a physiologically-based pharmacokinetic model. *Risk Analysis*, Accepted pending revisions.

Simmons, J.E., Evans, M.V, and Boyes, W.K. Moving from external exposure concentration to internal dose: duration extrapolation based on physiologically-based pharmacokinetic derived estimates of internal dose. *J. of Toxicol. & Environ. Health*. In press.

BIOGRAPHICAL SKETCH

NAME: Nigel A. Fields

POSITION TITLE: Environmental Health Scientist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Tulane University	B.S.	1994	Ecology, Evolution Organismal Biology/ Environmental Studies
Tulane School of Public Health	M.S.P.H.	1995	Environmental Toxicology

PROFESSIONAL EXPERIENCE :

- 1996 Environmental Epidemiologist, Louisiana Department of Public Health, New Orleans, LA
- 1997-1998 EPA Program Manager, Technical Outreach Services for Communities, USEPA Washington DC
- 1998-present Environmental Health Project Officer, National Center for Environmental Research, USEPA Washington, DC

PROFESSIONAL SOCIETIES & PUBLICATION BOARDS:

- International Society of Environmental Epidemiology
International Society of Exposure Analysis
Society of Toxicology

SELECTED AWARDS AND HONORS:

- Susan E Olive National EEO Award 2003

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY

- Workshop Leader, Centers for Children's Environmental Health and Disease Prevention Research Progress Review, November 2000, Berkeley, California
- Conference Co-leader, EPA Human Health Symposium, April 2003, Washington DC
- Conference Leader, Advances in Children's Health, May 2003, Washington DC
- Conference Leader, EPA Forum on Children's Health, May 2003, Washington DC
- Designated Federal Liaison, Technology Transfer and Training Advisory Board, South/Southwest Hazardous Substance Research Center, January 2004, Atlanta Georgia
- Session Chair, "Of Course Children are Different" EPA Science Forum, June 2004, Washington, DC
- Training Co-leader, "Casa de Salud: A Model for Engaging Community" EPA Community Involvement Conference, July 2004, Denver, CO
- Panel Co-Chair, "Effects of Environmental Exposures on Children's Risks of Asthma and Neurodevelopmental Disorders" 16th Conference of the ISEE, August 2004, New York, New York
- Invited Participant, NAFTA Commission for Environmental Cooperation's Advisory Board on Children's Health and the Environment, September 2004, Tepotzlan, Mexico
- Invited Participant, World Health Organization, International Working Group on Long Term Studies, September, 2004, Washington DC
- Panel Co-Chair, "Biomarkers of Exposure", Central and Eastern European Environmental Health Conference, October 2004, Prague, Czech Republic
- Featured Speaker, "Exploring EPA Research Opportunities" Jackson State University, Nov 2004, Jackson, MS

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

- 2001 Negotiated Memorandum of Understanding with the National Institute for Environmental Health Sciences to jointly solicit Environmental Justice and Children's Centers research grants.
- 2001 Awarded largest EPA competitive research grant to a tribe in EPA history.
- 2002 Coordinated with EPA Tribal Science Council, led team to establish first tribal grants program.
- 2002 Established Interagency Agreement between EPA and the Agency for Toxic Substances and Disease Registry to jointly fund tribal research grants.
- 2004 Awarded largest ever EPA competitive research center grant in New England to tribal community-university partnership
- 2004 Provided technical assistance to EPA's Office of Children's Health Protection in awarding state-sponsored asthma programs enrolling human subjects for research and surveillance
- 2004 Partnered with the Interagency Coordinating Committee of the National Children's Study in developing and releasing research solicitation entitled, "Early Indicators of Environmentally-Related Diseases."

PUBLICATIONS

Deary AD, Collman GW, Saint C, Fields N, Redd S. Introduction: Building a Network of Research in Children's Environmental Health, Environmental Health Perspectives Vol 107 Supplement 3:391-392 (1999).

BIOGRAPHICAL SKETCH

NAME: Roy Fortmann

POSITION TITLE: Branch Chief

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Iowa, Iowa City, Iowa	B.S.	1976	General Studies
University of Nevada, Las Vegas, NV	M.S.	1978	Biological Sciences
State University of New York, Syracuse, NY	Ph.D.	1982	Environmental Sciences

PROFESSIONAL EXPERIENCE:

Chief, Exposure Measurements and Analysis Branch, HEASD, NERL, ORD, EPA: 2002 - Present

Physical Scientist, EMAB, HEASD, NERL, ORD, EPA: 2000 - 2002

Senior Scientist, ARCADIS Geraghty & Miller, Durham, NC: 1993 - 2000

Research Scientist, Research Triangle Institute, Research Triangle Park, NC: 1990 - 1993

Senior Scientist and Assistant Director, GEOMET Technologies, Germantown, MD: 1984 - 1990

Post-Doctoral Research Associate, Carnegie-Mellon University, Pittsburgh, PA: 1983 - 1984

Technical Specialist, State University of New York, Syracuse, NY: 1980 - 1982

Research Fellow, U.S. EPA, Las Vegas, NV 1976 - 1978

SELECTED AWARDS AND HONORS:

Recipient, Bronze Medal - Wall Paints Exposure Assessment Model, 2000

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Member, National Children's Study Workgroup on Exposure to Chemical Agents; co-author of the document, *Measurement and Analysis of Exposures to Environmental Pollutants and Biological Agents During the National Children's Study* (2000 - present).

Councilor (Government), International Society of Exposure Analysis (2004).

Chair, American Society for Testing and Materials (ASTM), Indoor Air - Inorganic Chemicals Subcommittee.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Reviewer of Science Chapters in support of Registration Eligibility Decisions (REDs) for OPP risk assessments (e.g. pentachlorophenol, creosote, hexachlorobenzene).

Reviewer for OPP of study designs for pesticide exposure data collection.

Member of STAR grant proposal relevancy review panels.

Member of the EPA Order 1900.1A workgroup.

Participant on ORD biosolids research planning team.

Participant in NHEXAS lessons learned workshop.

Participant in scientist-to-scientist meetings on the Program Needs for Indoor Environments Research.

PUBLICATIONS:

Rench, J.D., Raymer, J.H., Thalji, L., Spruill, M., Salmons, C.A., Michael, L.C., Pecha, M.J., Dean, E., Akland, G., and Fortmann, R.. Demonstration of Low Cost, Low Burden Exposure Monitoring Strategies for Use in Longitudinal Cohort Studies, EPA/600/R-04/109, Office of Research and Development, Research Triangle Park, NC (2004).

Henschel, D.B., Fortmann, R.C., Roache, N.F., and Liu, X.. Potential for Reducing Indoor Styrene Exposure from Copied Paper through Use of Low-Emitting Toners. *Journal of the Air & Waste Management Association* 53:1347-1354 (2003).

Chang, J.C.S., Guo, Z., Fortmann, R., and Lao, H.. Characterization and Reduction of Formaldehyde Emissions from a Low-VOC Latex Paint. *Indoor Air* 12:10-16 (2002).

Fortmann, R.C., Sheldon, L.S., Cohen Hubal, E.A., Morgan, M.K., Stout, D.M., Thomas, K.W., Tulve, N.S., and Whitaker, D.A. The EPA National Exposure Research Laboratory Children's Pesticide Exposure Measurement Program. *Indoor Air* 2002 (4):888-893 (2002)

Fortmann, R., Kariher, P. and Clayton, C. Indoor Air Quality: Residential Cooking Exposures. California Air Resources Board Final Report (2001).

Berry, M.R., Cohen Hubal, E.A. Fortmann, R.C., Melnyk, L.J., Sheldon, L.S., Stout, D.M., Thomas, K.W., Tulve, N.S., and Whitaker, D.A.. Draft Protocol for Measuring Children's Non-Occupational Exposure to Pesticides by all Relevant Pathways. EPA/600/R-03/026, Office of Research and Development, Research Triangle Park, NC (2001).

BIOGRAPHICAL SKETCH

NAME: Edwin J. Furtaw, Jr.
EDUCATION/TRAINING

POSITION TITLE: Acting Associate Division Director

Institution	Degree	Year	Field of Study
Vanderbilt University, Nashville, TN	B. Eng.	1979	Chemical Engineering; Environmental & Water Resources Engineering

PROFESSIONAL EXPERIENCE:

Acting Associate Director for Human Exposure, Human Exposure & Atmospheric Sciences Division, NERL, ORD, EPA; April 2004 - Present.

Research Environmental Scientist, Exposure & Dose Research Branch, HEASD, NERL; 1997-2000
Environmental Engineer, Harry Reid Center for Environmental Studies, University of Nevada, Las Vegas; 1989-1997.

Senior Engineer, The MARK Group, Engineers & Geologists. Inc., Las Vegas, NV; 1989.

Senior Specialist - Chemistry, Carolina Power & Light Company, New Hill, NC; 1981-1988.

Chemical/Environmental Engineer, John G. Reutter Associates, Consulting Engineers, Camden, NJ; 1979-1981.

PROFESSIONAL REGISTRATION:

Registered Professional Engineering, Chemical Engineering, Nevada.

SELECTED AWARDS AND HONORS:

Recipient (Team): ORD Bronze Medal for Commendable Service, Indoor Mold Research, 2002.

Recipient (Team): Honorable Mention, USEPA Scientific and Technological Achievement Award, Children's Residential Pesticide Exposure Modeling, 2000.

INVITED LECTURES:

Overview of the U.S. EPA National Exposure Research Laboratory's human exposure modeling. Presentation at the Conference Theories and Practices in Toxicology and Risk Assessment, Cincinnati, OH, April 2002.

R. Tornero-Velez, Dary C.C., Knaak, J.B., Power, F., Dellarco, M.E., **Furtaw, E.**, Blancato, J.N. (2003). A Comparative Investigation of the Influence of Dermal Appendages (hair follicles) on the Percutaneous Absorption of Organophosphorus (OP) Insecticides using QSAR and PBPK/PD Models for Human Risk Assessment. Presented at 13th Annual meeting of the International Society of Exposure Analysis, Stresa, Italy.

Furtaw, E.J.Jr., Okino, M., Quackenboss, J.J., Roy, A., and Liroy, P.J. (2000). Modeling of chlorpyrifos exposure, dose, and biomarker using NHEXAS Minnesota children's data. Poster-platform presentation at International Society of Exposure Analysis 10th Annual Meeting, Monterey, CA.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Chair of the NERL-Las Vegas Awards Board, FY 2004.

Member of the NERL-Las Vegas Awards Board, 2002-2004.

SELECTED PUBLICATIONS AND PRESENTATIONS:

Bennett, D.H. and **Furtaw, E.J.Jr.** (2004). Fugacity-Based Indoor Residential Pesticide Fate Model. *Environ. Sci. Technol.* 38(7): 2142 - 2152.

Furtaw, E.J.Jr. (2002). An overview of human exposure modeling activities at the USEPA's National Exposure Research Laboratory. *Tox. and Industrial Health* 17: 302-314 (Issue was back-dated June 2001; actually published in Dec. 2002.)

Zartarian, V.G., Ozkaynak, H., Burke, J.M., Zufall, M.J., Rigas, M.L., and **Furtaw, E.J.Jr.** (2000). A modeling framework for estimating children's residential exposure and dose to chlorpyrifos via dermal residue contact and nondietary ingestion. *Environmental Health Perspectives* 108, 6: 505-514.

Cohen Hubal, E., Thomas, K., Quackenboss, J., **Furtaw, E.**, and Sheldon, L. (1999). Dermal and non-dietary ingestion workshop. EPA 600/R-99/039. USEPA, RTP, NC.

BIOGRAPHICAL SKETCH

Name: <u>Jane E. Gallagher</u>	Position Title: <u>Health Research Scientist</u>
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EDUCATION/TRAINING

Institution and Location	De gre e	Year	Field of Study
State University of NY Potsdam	BS	1976	Biology/Chemistry
Purdue University W.Lafayette n	MS	1981	Civil Engineering (Env.Engineering)
U. Of Utah, SLC City, Utah	MS	1982	Public Health
U. Of NC, Chapel Hill, NC	Ph. D.	1986	Env. Toxicology

PROFESSIONAL EXPERIENCE:

1987-Present Health Research Scientist, Epidemiology Biomarker, Branch Human Studies Division, NHEERL, US EPA RTP, NC

1999-present Adjunct Asst. Professor - UNC School of Public Health- Environmental Sciences and Engineering

1986-1987 National Research Council (NRC) postdoctoral fellow

1982-1986 Biologist, Laboratory of Pulmonary Pathobiology, National Institute Environmental Health Sciences (NIEHS RTP, NC).

1981- Consultant Wastewater Engineering, General Motors Corp. Massena, NY

1981- 1982 NIOSH traineeship Rocky Mountain Center for Occupational Medicine, Salt Lake City Utah

1979-1981 Research and teaching assistant. Environmental Engineering-Dept of Civil Engineering, Purdue University W. Lafayette IN.

1976-1979 Laboratory Supervisor, General Motors Corporation, Chevrolet Division, Massena, NY

SELECTED AWARDS AND HONORS:

Special Act Award 2004- Lead PI- proposal in response to ORD Computational Toxicology RFA

Special Act Team Award- 2004 Participation of Clinical Asthma Panel studies-for application in larger field studies

Special Act Team Award- 2003 Participation in Biomarker Field Study-Fallon Nevada

Office of Research and Development-USEPA Diversity Award 2002

Special Act Award- for Coordination of Biomarker Analysis EPA-CZECH. Republic Studies

Science and Technology Achievement Awards (2) 1994

INVITED LECTURES/SYMPOSIA:

Adjunct Asst Professor- Lecturer for graduate level classes

Invited Speaker: Society of Toxicology- National Children Study symposium “Validation of non-invasive Biological Sources for Application in Environmental Epidemiology Studies” 2004.

Invited Speaker: ORD/Regional- “Biomarkers Approaches/Cumulative Risk Assessment/State of the Science”- Cumulative Risk workshop-2002.

Invited Speaker: Local Community- “Approaches for Assessing Exposures from Multiple Facilities” 2002

Invited Speaker: National Children Studies-“Non-invasive Samples for Gene/Environmental Studies” 2002, 2003

Invited Speaker, Maximum Allowable Conc. Workshop-Munich,Germany “Animal to Human extrapolation” 2001

Invited speaker: local SOT 2001- “Interfacing Toxicology and Epidemiology through Biomarker Development”

Invited speaker: PM Conference “Air pollution Particles: physicochemical properties, DNA damage, and detection in human and canine tissue” 2000

Invited Speaker:RJ Lee INC Pittsburg PA: “Health Effects Indicators in Human Lung in Relation to Metal Content Particle Number” 2000.

Invited Speaker: ORD Workshop “Community Assessment through Biomarkers and Standard Mortality Records” - RTP-NHEERL 99.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Editorial Board: Mutation Research 2000- present

Journal Reviewer: Toxicology Appl Pharmacology, Environmental Health Perspectives, Carcinogenesis, Cancer, Epidemiology Biomarkers and Prevention, J. of Toxicology and Environmental Health. Environmental Mutagen Society

Scientific Mentor: To Recent Graduate Student Service Contracting Authority 2003-2004

Adjunct Asst Professor: Lecturer for graduate level classes

Assistance/Training: NC Department of Environmental and Natural Resources (To Coordinator-Chemical Accident Prevention, Division of Air Quality)- Use of Risk Screening Environmental Indicator Model

Assistance/Training: NC Department of Crime and Public Safety Division of Emergency Management

Training/oversight/assistance: major professors (NCCU and NCSU)-related to graduate student air pollution graduate and undergraduate research projects.

Research Triangle Scientist-Teacher Partnership Participant

Health Professional Partnership-UNC, NC (A mentoring program for instilling scientific interest to under-represented minorities) 2000-2003.

Coordinator: Science Fair Judges for elementary and middle school (local).

Dissertation advisor: two NCCU master students 1999-2002.

Dissertation Committee member: Andrew Linstrom, Environmental Science and Engineering School of Public Health UNC at Chapel Hill 1997

Expert Panel Member: Workshop on Toxicological Significance of DNA adducts Regulatory Toxicology and Pharmacology Boca Raton Fla. 1995

IARC Invited speaker participant-DNA adduct workshop participant/speaker-Lyon France-1993

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Topic Lead: Office of Research and Development (ORD) Human Health Risk Review- "Oxidative Stress"-2004

Assistance: Office of Science Policy, US EPA-CRISP Computer Retrieval of Information on Scientific Projects-2004

Assist-Planning of a jointly EPA/Industry(ILSI) sponsored Biomarker Workshop 2004.

Co-chair- Session for Cumulative Risk Assessment Regional Assessment /ORD workshop Dallas, Tx. Nov 3-7, 2002

Participated in writing chapter for NHEERL - Human health risk Assessment Strategy Document

National Center for Environmental Research-Reviewer for EPA's STAR Grant Biomarker Proposals-2003

World Health Organization- Reviewer-NO₂-PAH document 2003

Region 10 US EPA - Interface/assist Liaison for ORD Office of Science Policy 2003-2004

Committee organizer-NHEERL Annual Symposium 1998: "Extrapolation in Human Health and Ecological Risk Assessment"

PUBLICATIONS (selected publications of total 38 peer reviewed articles and book chapters):

Gallagher J., R. Sams II, J. Inmon , R. Gelein, A. Elder , G. Oberdorster , and A. K. Prahalad 2003 Formation of 8-oxo-dG in rat lung following subchronic inhalation of carbon black Toxicol Appl Pharmacol. Aug 1;190(3):224-31.

Becker S., Soukup J., **Gallagher, J.** 2002 Differential particulate air pollution induced oxidant stress in human granulocytes, monocytes and alveolar macrophages. Toxicology In Vitro 16:209-218.

Prahalad AK , Inmon J., Dailey L, Madden M , Ghio, A. **Gallagher J.**2001 Air pollution mediated oxidative DNA damage in cell free systems and Human Airway Epithelial cells in relation to particle metal content and bioreactivity. Chemical Research and Toxicology

AK Prahalad, J. Soukup, J. Inmon, R. Willis, A J. Ghio, S. Becker and **J.Gallagher** 1999. Ambient Air Particles: Effects on cellular oxidant radical generation in relation to particulate elemental chemistry, Toxicology and Applied Pharmacology: 158: 81-91

A. K. Prahalad, D. K. Manchester, I. C. Hsu, J. Inmon, **J. E. Gallagher** 1999 Human placental microsomal activation and DNA adduction by air pollutants, Environ.Contam. Toxicol 62:93-100

Madden M and **Gallagher J.E.** 1999 Biomarkers of Exposure In: Air Pollution and Health St. Holgate, HS Koren, J. Samet and R. Maynard, eds Academic Press London 417-430

BIOGRAPHICAL SKETCH

NAME: Andrew M. Geller
EDUCATION/TRAINING

POSITION TITLE: Research psychologist

Institution	Degree	Year	Field of Study
University of Pennsylvania, Philadelphia, PA	A.B.	1979-1983	Psychology and Biological Basis of Behavior
University of Michigan, Ann Arbor, MI	M.A., PhD	1984-1992	Experimental Psychology, Cognition and Perception Psychology
University of North Carolina, Chapel Hill, NC	post-doc	1992-1995	Neurotoxicology
US Environmental Protection Agency (NRSA)	post-doc	1995-1997	

PROFESSIONAL EXPERIENCE:

Senior Staff lead for ORD, US EPA Aging Initiative 2002 - Present

Principal Investigator, Neurotoxicology Branch, NTD, NHEERL, ORD EPA 1997 - Present

NRSA Post-doctoral research fellow, Neurophysiological Toxicology Branch, Neurotoxicology Division, U.S. EPA 1995-1997

Post-doctoral research fellow, Center for Environmental Health and Lung Biology 1992-1995
University of North Carolina at Chapel Hill

SELECTED AWARDS AND HONORS :

Regents' Fellowship, University of Michigan,

National Research Service Award, National Institute of Environmental Health Science, 1995-1997

S-Award, Special Act for Service to ORD in establishing research program in aging, 2003

S-Award, for sustained contribution to NTD effort in perchlorate RA, 2003

S-Award, NHEERL Team Award for Human Health Research Implementation, 2003

S-Award: Aging Initiative, Team leadership, contributions to toluene and styrene risk assessments, 2004

INVITED LECTURES/SYMPOSIA (Selected presentations from a total of 12 in the last 5 years):

1. Effects of a cholinesterase inhibiting pesticide on the retina. Grand Rounds, UNC Department of Ophthalmology, Chapel Hill, NC, 2001.

2. Homology of Assessment of Sensory Function in Humans and Animals. 8th International Symposium on Neurobehavioral Methods and Effects in Occupational and Environmental Medicine, Brescia, Italy, 2002.

3. Pesticide Safety: Contributions of multiple sources of exposure and research issues for the aging adult population. National Council on Aging/American Society on Aging Joint Meeting, Chicago, IL, March, 2003

4. EPA's Indoor Environments Program: Indoor environmental exposure risks to aging adults. National Council on Aging/American Society on Aging Joint Meeting, Chicago, IL, March, 2003.

5. Visual System Toxicology: A sensitive site and indicator of occupational and environmental toxicant exposure. International Neurotoxicology Association, Dresden Germany, June, 2003.

6. The Environment and Aging. Council of State and Territorial Epidemiologists working group on Behavioral Risk Factors Surveillance Survey, Atlanta, GA, October, 2003.

7. Public Health and Susceptibility of Older Adults, US EPA Regional Risk Assessors Annual Meeting, Boston, May 2004.

8. Aging and Environmental Health. Institute of Medicine, Board on Health Promotion and Disease Prevention, Was

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Adjunct Assistant Research Professor, Department of Ophthalmology, University of North Carolina at Chapel Hill (1998-present).

Co-chair Session on Neurotoxicology of Pesticides, Society of Toxicology, San Francisco, CA, March, 2001.

Co-Chair session on Connecting Animal Models with Human Neurobehavioral Testing: Advantages and Approaches. 8th International Symposium on Neurobehavioral Methods and Effects in Occupational and Environmental Medicine, Brescia, Italy, 2002.

ORD representative to Interagency Coordinating Committee for Validation of Alternative Methods, Ocular Toxicity Working Group (2003 - present).

Organize and moderate symposium on Aging and the Environment for American Public Health Association, San Francisco, CA (2003)

Organize and moderate symposium: National Agenda on the Environment and the Aging: A case study on air pollution and the broader applications, for American Public Health Association, Washington, DC (2004)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Contributing member, Ammonium perchlorate risk assessment team, (1998 - present)

Team leader, Human Health Research Program Project on Susceptibility Associated with Aging (2002-2004)

Senior staff lead for ORD, US EPA Aging Initiative (2002 - present)

Contributor to risk assessments of styrene and toluene (2004)

Organizing committee and session chair, US EPA/NIEHS Workshop on Environmental Influences on the Induction and Incidence of Asthma (2004)

PUBLICATIONS (12 selected from a total of 20 published or in review in last 5 years and overall total of 41 papers, chapters, and technical reports and memos):

Geller, AM, Bushnell, PJ, Rice, DC. Behavioral and electrophysiological estimates of visual thresholds in awake rats treated with 3,3',4,4',5-pentachlorobiphenyl (PCB 126). **Neurotoxicology and Teratology** 22 (4): 521-532, 2000.

Peiffer, RL, McCary, B, Bee, W, Wegener, A, Geller, AM, Boyes, WK. Contemporary Methods in Ocular Toxicology. **Toxicology Methods** 10:1-23, 2000

Geller, A.M., Oshiro, W.M., Haykal-Coates, N., Kodavanti, P.R.S., Bushnell, P.J. Gender-dependent behavioral and sensory effects of a commercial mixture of polychlorinated biphenyls (Aroclor 1254) in rats. **Toxicological Sciences**, 59: 268-277, 2001.

Geller, A.M. A table of color distance scores for quantitative scoring of the Lanthony desaturate color vision test. **Neurotoxicology and Teratology**, 23: 265-267, 2001.

Schreiber, JS, Hudnell, HK, Geller, AM, House, DE, Aldous, KM, Force, ME, Languth, KW, Prohonic, EJ, Parker, JC. Apartment residents' and day care workers' exposures to tetrachloroethylene (perc) and deficits in visual contrast sensitivity. **Envir. Health Persp.**, 110 (7) :655-664, 2002.

Rothenberg, SJ, Schnaas, L, Salgado-Valladares, MD, Casanueva, E, Geller, AM, Hudnell, HK, Fox, DA. Increased ERG A- and B-wave amplitude in 7-10 year old children resulting from prenatal lead. **Inv Ophthal Vis Sci**, 43: 2036-2044; 2002.

Geller, A.M. Homology of assessment of visual function in human and animal models. **Environ. Toxicol. Pharmacol.**, in press.

BIOGRAPHICAL SKETCH

NAME: Jeffrey S. Giff

POSITION TITLE: Director Support Scientist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
The College of William and Mary, Williamsburg, VA	B.S.	1975-1979	Chemistry
The American University, Washington, DC	Ph.D.	1968-1973	Chemistry

PROFESSIONAL EXPERIENCE:

Director Support Scientist, EPA NCEA, RTP, NC	9/97 to Present
Health Scientist, EPA NCEA, RTP, NC	9/90 to 9/97
Toxicologist, Agency for Toxic Substances & Disease Registry, Atlanta, GA	8/88 to 9/90
Toxicologist, Environmental Monitoring and Services, Washington, DC	1/86 to 8/88
Chemist, Food & Drug Administration, Information Systems Br, Rockville, MD	10/84 to 1/86
Chemical Information Specialist, Computer Sciences Corp, Falls Church, VA	11/82 to 10/84
Chemist, Lieutenant, jg, U.S. Coast Guard	9/79 to 5/83

SELECTED AWARDS AND HONORS:

08/04, Bronze Medal, Environmental Protection Agency – Supporting Sound Science
08/04, Bronze Medal, Environmental Protection Agency – Due Diligence, EPA Building Assessment
12/03, Outstanding Unit Citation (Hurricane Isabel)
09/03, Bronze Medal, Environmental Protection Agency
11/02, EPA Scientific Achievement Award Nominee
01/01, EPA NCEA Peer Award - Scientific Achievement
05/96, Bronze Medal, Environmental Protection Agency - Air RISC Support
05/96, Bronze Medal, Environmental Protection Agency - IRIS Support
12/93, PHS Citation Award, Environmental Protection Agency
01/93, PHS Unit Commendation, Agency for Toxic Substance & Disease Reg
12/92, PHS Citation Award, Environmental Protection Agency
11/92, EPA/OHEA Peer Honor Award for Teamwork, Env. Protection Agency
11/91, Letter of Commendation, EPA Hazardous Pollutant Assessment Br.
01/91, Special Act Award, EPA Hazardous Pollutant Assessment Branch
12/89, PHS Citation Award, Agency for Toxic Substances & Disease Registry

INVITED LECTURES (Selected presentations over the last 5 years):

1. Dose-Response Modeling. Training Course presented at 2003 Conference on Theories and Practices in Toxicology and Risk Assessment, Cincinnati, OH, April 21, 2004.
2. Advances in Dose-Response Modeling Methods. Training Course presented at 2003 Conference on Theories and Practices in Toxicology and Risk Assessment, Cincinnati, OH, April 18, 2003.
3. US EPA's IRIS assessment of 2-butoxyethanol: The relationship of noncancer to cancer effects. Presented in Paris, France at the 2002 International Scientific Symposium on the Health Effects of Glycol Ethers sponsored by the American Chemistry Council and CEFIC.
4. Risk Assessment Using EPA Benchmark Dose Software Version 1.3. Training Course presented to EPA National Center for Environmental Assessment staff, Cincinnati, OH, April 19, 2002.
5. Risk Assessment Using EPA Benchmark Dose Software Version 1.3. Training Course presented to EPA Office of Pesticides Program risk assessment staff, June 7, 2000.
6. Risk Assessment Using EPA Benchmark Dose Software Version 1.3. Training Course presented to EPA Integrated Risk Information System staff, April 27, 2000.
7. Risk Assessment Using EPA Benchmark Dose Software Version 1.2. Invited Instructor for Workshop at 1999 Society for Risk Analysis Annual Meeting in Atlanta, GA.
8. Chair of "Issues in Dose Response I." Platform Session at 1999 Society for Risk Analysis Annual Meeting in Atlanta, GA.
9. Status of EPA Benchmark Dose Software. Presented to the American Industrial Health Council's Dosimetry and Risk Assessment Subcommittee. June 10, 1999.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Adjunct Science Professor, 1996-Present, Southeastern College at Wake Forest
Deployable member, (2003-) PHS Commissioned Corp Readiness Force
Member, Society for Risk Analysis (Local and National Chapters)
Member, U.S. Public Health Service Commissioned Officers Association
Member, 1999-Present, Dose-Response Specialty Group, Society for Risk Analysis

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Chair, 2001-Present, EPA Methanol IRIS Assessment Workgroup
Member, 1997-Present, EPA Benchmark Dose Workgroup
Member, 1995, EPA Steering Committee for Evaluation of Glycol Ether Health Effects
Chair, 1994 workshop, "Ambient Levels and Noncancer Respiratory Effects of Inhaled Silica"
Co-chair, 1992, "The Emerging Risk Assessments for Crystalline Silica" workshop
Member, IRIS Peer Review Process Development Committee
Member, Air RISC Hotline Response Team

GOVERNMENT PUBLICATIONS (10 selected from a total of 40 published in last 15 years):

U.S. Environmental Protection Agency. 2004. An Evaluation of the Human Carcinogenic Potential of Ethylene Glycol Butyl Ether. EPA NCEA, EPA 600/R-04/123, Final [Author].

U.S. Environmental Protection Agency. 2004. IRIS Summaries and Toxicological Review for Ethylene Dibromide. EPA NCEA, EPA 635/R-04/067, Final [Chemical Manager; Author].

U.S. Environmental Protection Agency. 2004. IRIS Summaries and Toxicological Review for Methanol. Internal Review Draft [Chemical Manager; Author].

U.S. Environmental Protection Agency. 2004. IRIS Summaries and Toxicological Review for Phosgene. Final [Co-Author]

U.S. Environmental Protection Agency. 2004. IRIS Summaries and Toxicological Review for Methyl tert-Butyl Ether (MTBE). [Co-Author; External review draft]

U.S. Environmental Protection Agency. 2002. Benchmark Dose Software Software Version 1.3.2 Available over the internet at <http://www.epa.gov/ncea/bmds.htm> [Project Officer].

U.S. Environmental Protection Agency. 2002. Benchmark Dose Software Help System for version 1.3.2 Available at <http://www.epa.gov/ncea/bmds.htm> [Primary Author].

U.S. Environmental Protection Agency. 2001. IRIS Summaries and Toxicological Review for Quinoline. Final Draft loaded onto EPA Integrated Risk Information System September, 2001 [Primary Author].

U.S. Environmental Protection Agency. 1999. IRIS Summaries and Toxicological Review for Ethylene Glycol Butyl Ether. Final loaded onto EPA IRIS December, 1999 [Primary Author].

U.S. Environmental Protection Agency. 1998. IRIS Summaries and Toxicological Review for Methyl Methacrylate. Final Draft loaded onto EPA Integrated Risk Information System March, 1998 [Author].

BIOGRAPHICAL SKETCH

NAME: M. Ian Gilmour

POSITION TITLE: Research Biologist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Glasgow, U.K.	B.Sc.	1984	Microbiology and immunology
University of Bristol, U.K.	Ph.D.	1988	Aerobiology & inhalation toxicology
Johns Hopkins University, Baltimore, MD	Post-doc	1988-90	Immunotoxicology
University of North Carolina, NC	Post-doc	1990-92	Health effects of air pollution

PROFESSIONAL EXPERIENCE:

1992-1998: Research Associate. Center for Environmental Medicine and Lung Biology, University of North Carolina.

1998-2000: R Authority Biologist, Experimental Toxicology Division, U.S Environmental Protection Agency.

1998-present: Adjunct Associate Professor, UNC School of Public Health, and UNC Curriculum in Toxicology

2000-present: Adjunct Assistant Professor, NC State College of Veterinary Medicine.

PROFESSIONAL SOCIETIES:

Society of Toxicology

American Thoracic Society/ American Lung Association

SELECTED AWARDS AND HONORS:

1999: Young Investigator of the Year: Inhalation Specialty Section, Society of Toxicology.

2001: EPA Science and Technology Achievement Award (Level 2).

2002: Young Investigator of the Year: Immunotoxicology Specialty Section, Society of Toxicology.

2002: EPA Science and Technology Achievement Award (Level 3).

2003: EPA Gold Medal for particulate matter research.

INVITED LECTURES/SYMPOSIA:Society of Toxicology 2004. Workshop Chair and speaker. New horizons on the health assessment of diesel exhaust.

Workshop on vehicle exhaust particles 2003. Tsukuba, Japan. Speaker and chair, Health effects of nanoparticles.

Society of Toxicology 2003: Workshop Chair and speaker. Methods for the identification of respiratory allergens.

American Thoracic Society, 2002. Symposium speaker. Enhanced allergic sensitization by air pollutants in animals.

American Thoracic Society, 2001. Invited faculty for C E Course on environmental and occupational lung diseases.

Congress on Inhaled Particles. Cambridge, England, 2001. Invited speaker. Mechanisms of allergic sensitization.

Society of Toxicology 2001: Symposium Chair and speaker. Environmental influences on development of asthma.

Society of Toxicology 2000: Symposium Chair and speaker Role of endotoxin in environmental lung disease.

Society of Toxicology 1999: Session Chair, New Orleans LA. Airborne particulate matter: In vivo toxicity

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

2004-present Editorial Board of Inhalation Toxicology

2004-present Editorial Board of Particle and Fiber Toxicology

1998-present: Committee member: Immunotoxicology review group, Chemical Manufacturers Association.

2002: Expert speaker: National Academy of Sciences, (NRC committee on particulate matter).

1999: Expert speaker: National Academy of Sciences, (IOM committee on asthma and indoor air).

1999: Consultant on long range research strategy, Lovelace Respiratory Research Institute, Albuquerque, NM.

Journal Reviewer: Tox Sci, TAP, Am J Resp Crit Care Med. Am J Cell Mol Biol, Exp Lung Res. Env Hlth

Perspect, Toxicology, Inhal Tox, Environ Res.

Grant reviewer; U.S Air Force, British Lung Foundation, The Wellcome Trust.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Feb 02-Jan 03: Acting Chief, Immunotoxicology Branch.

Team leader: Mechanisms of PM health effects.

Team leader: NHEERL asthma research initiatives.

Team leader :Health effects of combustion emissions.

Member: NHEERL ozone strategy writing team.

PUBLICATIONS: (From January 1, 1999 to present, out of a total of 56):

Lambert, AL., Winsett, DW., Selgrade, MJ., & Gilmour, MI (1999). Residual oil fly ash (ROFA) enhances allergic airway responses to house dust mite (HDM) in Brown Norway rats. *Tox Appl Pharmacol.* 158. 269-277.

Coussons-Read., ME., Daniels, M., Gilmour, MI. (1999) Morphine reduces pulmonary inflammation in response to influenza virus infection. *Life Sciences.*65(11). 1141-1152.

Gilmour MI. & Koren HS. (2000) Interaction of inhaled particles with the immune system. In *Particle-Lung Interactions*. Pp 629-652. Eds P. Gehr and J. Heyder. The Lung Series. Marcel Decker.

Gilmour MI. (2000) Hypersensitivity and asthma. In *Pulmonary Immunotoxicology..* pp107-126. Eds M, Cohen., J, Zelikoff., and R, Schlesinger. Kluwer Academic Publishers.

Donaldson, K., Gilmour, MI., & MacNee, W. (2000). Asthma and PM10. *Respiratory Research* (1) 1-4.

Selgrade, M.J.K., Lambert, A.L., Ward, M.D.W., and Gilmour, M.I. (2000). Animal models to assess the effects of air pollutants on allergic lung disease. *Annals N.Y. Acad. Sci.* 919:230-238.

Gilmour, MI., Selgrade, MJ. & Lambert, AL (2000). Enhanced allergic sensitization in animals exposed to particulate air pollutants. *Inhalation Toxicol* 12 (S3) 373-380.

Dong, W., Kari, FW., Selgrade, MJK & Gilmour, MI. (2000) Attenuated allergic responses to house dust mite antigen in feed restricted rats. *Env Hlth Persp* 108 (12)1125-1131.

Ryan, L.K., Neldon, D.L., Bishop, L., Gilmour, M.I., Daniels, M.J., Sailstad, D.M., and Selgrade, M.J.K. (2000). Exposure to ultraviolet radiation enhances mortality and pathology associated with influenza virus infection in mice. *Photochem. Photobiol.* 72: 497-507.

Lambert, AL., Selgrade, MJ & Gilmour, MI. (2000) Enhanced allergic sensitization by residual oil fly ash particles is mediated by soluble metal constituents. *Tox Appl. Pharmacol.* 165. 84-93.

Gilmour, MI., Daniels, M., McCrillis, RC., Winsett, DW & Selgrade, MJ. (2001). Air pollutant-enhanced respiratory disease in experimental animals. *Env Hlth Persp.* 109 (S4) 619-622.

Lambert, AL., Selgrade, MJ, Winsett, DW & Gilmour, MI. (2001). TNF- α enhanced allergic sensitization to house dust mite in Brown Norway rats. *Exp Lung. Res.* 27. 617-635.

Luebke, RW., Copeland, CB., Daniels, AL., & Gilmour, MI. (2001). Suppression of allergic responses to house dust mite (HDM) in rats exposed to 2,3,7,8-TCDD. *Tox Sci.* 62. 71-79.

Luebke, RW., Copeland, CB., Bishop, LR., Daniels, M., & Gilmour, MI. (2002). Mortality in dioxin-exposed mice infected with influenza: mitochondrial toxicity (Reyes-like syndrome) versus enhanced inflammation as the mode of action. *Tox Sci.* 69.109-116.

Singh, P, Daniels, M, Winsett, DW, Richards, J, Doerfler, D, Hatch, G, Adler, KB, Gilmour, MI. (2003) Phenotypic comparison of allergic airway responses to house dust mite in three rat strains. *American Journal of Physiology: Lung Cellular and Molecular Physiology.* 284. L588-98.

Dong, W., Selgrade, M.J.K., and Gilmour, MI. (2003) Systemic administration of *B pertussis* enhances pulmonary sensitization to house dust mite in juvenile rats. *Toxicological Sciences,* 72. 113-121. 284.

Daniels, M.J., Selgrade, M.J.K., Doerfler, D., and Gilmour, M.I. (2003). Kinetic Profile of Influenza Virus infection in three different rat strains. *Comparative Medicine.* 53, 293-298.

Dick, CA., Singh, P., Daniels MJ., Evansky, PA., Becker, S., and Gilmour MI. (2003). Murine pulmonary inflammatory responses following instillation of size fractionated ambient particulate matter. *Journal of Toxicology and Environmental Health.* 66(23) 2193-2208.

Gavett, SH., Haykal-Coates, N, Copeland, LB., Heinrich, J., and Gilmour, MI. (2003). Metal-Rich Ambient PM_{2.5} Exacerbates Allergic Airways Disease in Mice. *Env Hlth Perspect,* 111 1471-1477.

Gilmour, MI., O'Connor, S., Dick, CA., Miller, CA., and Linak, WP. (2003). Differential pulmonary inflammation and in vitro cytotoxicity by size fractionated particles collected from combusted coal emissions. *J Air Waste Management Assoc.* 54 (286-295).

DeMarini, DM, Brooks, LT., Warren, SH., Kobayashi, T., Gilmour, MI., and Singh, P. (2004). Bioassay directed fractionation and salmonella mutagenicity of automobile and forklift diesel exhaust particles. *Environmental Health Perspectives,* 112(8) 814-819

Sing, P., DeMarini, DM, Dick, CAJ., Tabor, D., Ryan, J., Linak, WP., Kobayashi, T and Gilmour, MI. (2004). Sample characterization of automobile and forklift diesel exhaust particles and comparative toxicity in mice. *Environmental Health Perspectives,* 112 (8) 820-25.

BIOGRAPHICAL SKETCH

NAME: Barbara S. Glenn

POSITION TITLE: Environmental Scientist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of California, Davis	B.S.	1977	Wildlife & Fisheries Biology
University of Michigan School of Public Health	M.P.H.	1984	Environmental Health Policy Analysis
The Johns Hopkins University School of Hygiene and Public Health	Ph.D.	1999	Environmental/Occupational Epidemiology

PROFESSIONAL EXPERIENCE:

April 2002 - present **Environmental Scientist**, Office of Research and Development, U.S. Environmental Protection Agency

April 1999 - March 2002 **Postdoctoral Fellow**, Department of Neurology, Kennedy Krieger Research Institute, School of Hygiene and Public Health, The Johns Hopkins University

Feb 1991 - Feb 1993 **Research Associate**, The George Washington University Medical Center, Department of Health Care Sciences, Washington, D.C.

Jan 1988 - Aug 1989 **Research Associate**, National Wildlife Federation, Great Lakes, Natural Resource Center, Ann Arbor, MI

June 1985 - Dec 1988 **Health Planner**, Macomb County Health Department, Mt. Clemens, MI

Nov 1984 - June 1985 **Research Consultant**, Bockoff and Zamler Attorneys at Law, Southfield, MI

Summer 1983 **Environmental Protection Specialist**, U.S. Environmental Protection Agency, Dallas, TX

SELECTED AWARDS AND HONORS:

Bronze Medal, U.S. Environmental Protection Agency, 2004

Individual National Research Service Award, NIEHS, March 2001 - March 2004

NIEHS Training Grant, 1993 - 1997

U.S. Public Health Service Traineeship; 1982 - 1983, 1983 - 1984.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Organized and chaired a symposium titled, "Assessing Long-Term Exposure to Ambient Particulate Matter in Existing Cohort Studies," for the 16th Conference of the International Society for Environmental Epidemiology in New York, NY, from August 1-4, 2004.

Peer reviewer of proposals to conduct feasibility studies for epidemiological research under Department of Energy funding proposal titled, "Epidemiology and Toxicology of Primary and Secondary Particulate Matter Emissions from Coal-Fired Power Plants," July, 2004.

International Society for Environmental Epidemiology, 2002 - present

American Heart Association, 2002 - present

Society for Epidemiological Research, 1998 - present

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member of writing team for ORD Five-Year PM Accomplishments Report, 2004.

Reviewed the draft EPA, OAQPS Air Toxics Risk Assessment Reference Library, Volume 2, Facility-Specific Assessment, April 2004.

Member, ORD/OAR HAP Delist Petition Technical Review Workgroup for MIBK, 2004

Member, ORD/OAR Total Facility Low Risk Determination Workgroup, 2004

PUBLICATIONS (Publications represent 2 out of a total of 8 for the period 1999-2004):

Glenn BS, Stewart WF, Schwartz BS, Kelsey KT, Links JM, Todd AC. The longitudinal association of lead with blood pressure. *Epidemiology* 2003;14:30-36.

Glenn BS, Stewart WF, Schwartz BS, Bressler J. Relation of alleles of the sodium-potassium adenosine triphosphatase $\zeta 2$ gene with blood pressure and lead exposure. *Am J Epidemiol* 2001;153(6):537-545.

BIOGRAPHICAL SKETCH

NAME: Jerome M. Goldman

POSITION TITLE: Research Biologist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Pittsburgh (Pittsburgh, PA)	B.S.	1967	Psychology
East Carolina University (Greenville, NC)	M.A.	1969	Psychology
York University (Toronto, Ontario, Canada)	M.A.	1974	Psychology
University of Waterloo (Waterloo, Ontario)	Ph.D.	1983	Biopsychology
Duke University (Durham, NC)	Postdoc	1983-1984	Neuroendocrinology

PROFESSIONAL EXPERIENCE:

Instructor in Clinical Chemistry, U.S. Army Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston, Texas 1970 - 1972

National Institute on Aging, Research Training Fellowship, Duke University Medical Center, Durham, NC. 1983 - 1984

National Research Council (EPA) Research Associate, Reproductive Toxicology Branch, Developmental Biology Division, Health Effects Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC. 1984 - 1987

Research Scientist / Project Supervisor, Reproductive Toxicology Group, NSI Technology Services/ManTech Environmental Technology, Research Triangle Park, NC. 1987-1991
Research Biologist, Endocrinology Branch, Reproductive Toxicology Division, National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC. 1991- present

SELECTED AWARDS AND HONORS:

ORD Bronze Medal (co-recipient) - "Promoting Strong Science in Agency Decisions" 2003

US EPA Scientific and Technological Achievement Award (Level III) "The effects of endocrine disruptors on male and female pubertal development" 2002

ORD Award (co-recipient) for Outstanding Technical Assistance to the EPA Office of Prevention, Pesticides and Toxic Substances- Recognitions for Involvement during the Standardization and Validation of the Tier 1 Screening Battery of the Endocrine Disruptors Screening Program. 2000

Selection of Toxicological Sciences Paper of the Year (2000) for: *Cooper, R.L., Stoker, T.E., Tyrey, L., Goldman, J.M., McElroy, W.K. Atrazine disrupts the hypothalamic control of pituitary-ovarian function. Toxicological Sciences 53: 297-307 (2000).*

INVITED LECTURES/SYMPOSIA:

Endocrine Disruptor Methods Validation Subcommittee (USEPA Endocrine Disruptors Screening Program), "Steroidogenesis Detailed Review Paper" Washington, DC. June 11, 2002

National Tribal Science Council, "Introduction to Endocrine Disrupting Chemicals", Washington, DC. Sept. 19, 2002

North Carolina State University, Dept. of Environmental & Molecular Toxicology “Haloacetic acids and the endocrine regulation of female reproductive cyclicity”, Raleigh, NC Nov. 12, 2002

Fertility and Pregnancy Abnormalities Team, Biannual meeting, National Occupational Research Agenda, NIOSH “Endocrine Disrupting Chemicals: Review and Update of EPA’s Proposed Screening Program”, San Antonio, TX. February 28, 2003

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

American Water Works Association Research Foundation, Drinking Water Research Needs Expert Workshop, Reston, VA. Sept., 1999

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Organizing Committee, Endocrine Disruptors Program Review Workshop, Research Triangle Park Oct., 2002

Project Officer, Cooperative Agreement with the Research Triangle Institute (ID #R82827801-0), “Multigeneration assessment of a disinfection by-product”. 2000- 2004

Technical Advisor, EPA Research contract to ENTRIX/J.Giesy, “Optimization of the H295R cell line for use in evaluating toxicant-induced effects on steroidogenesis”. 2003 - present

Technical Advisor to the Office of Science Coordination and Policy, Endocrine Disruptors Screening Program, Tier I assay for steroidogenesis. 2001 - present

Member: Goal writing team, NHEERL Strategic Plan 2000. 1999 - 2000

PUBLICATIONS (11 selected from a total of 17 for the period 1999-2004):

Goldman, JM, Murr, AS, Cooper, RL. Evaluations of rodent vaginal cytology in toxicological studies of female reproductive biology. In: R. Chapin, B. Davis (Eds.), Female Reproductive Toxicology: Principles and Methods. ILSI Press: Washington. (In press).

Goldman, JM, Murr, AS, Buckalew, AR, Schmid, JE, Abbott, BD. Methoxychlor-induced alterations in the histological expression of angiogenic factors in pituitary and uterus. *Journal of Molecular Histology* 35:363-375 (2004).

Klinefelter, GR, Strader, LF, Suarez, JD, Roberts, NL, Goldman, JM, Murr, AS. Continuous exposure to dibromoacetic acid delays pubertal development and compromises sperm quality in the rat. *Toxicological Sciences* 8: 419-429 (2004).

Goldman, JM, Laws, SC, Cooper, RL. Assessment of toxicant-induced alterations in ovarian steroidogenesis: A methodological overview. In: P. Hoyer (Ed.), Ovarian Toxicology. (Target Organ Toxicology Series). CRC Press: Boca Raton, FL (2004). pp. 202-222.

Goldman, JM, Murr, AS. Dibromoacetic acid-induced elevations in circulating estradiol: Effects in both cycling and ovariectomized/steroid-primed female rats. *Reproductive Toxicology* 17: 585-592 (2003).

Goldman, JM, Murr, AS. Alterations in ovarian follicular progesterone secretion by elevated exposures to the drinking water disinfection by-product dibromoacetic acid: Examination of the

potential sites(s) of impact along the steroidogenic pathway. *Toxicology* 171:83-93 (2002).

Balchak, SK, Hedge, JM, Murr, AS, Mole, ML, Goldman, JM. Influence of the drinking water disinfection by-product dibromoacetic acid on rat estrous cyclicity and ovarian follicular steroid release in vitro. *Reproductive Toxicology* 14:533-539 (2000).

Zucker, RM, Keshaviah, AP, Price, OT, Goldman, JM. Confocal laser scanning of rat follicle development. *Journal of Histochemistry and Cytochemistry* 48: 781-791 (2000).

Goldman, JM, Laws, SC, Balchak, SK, Cooper, RL, Kavlock, RJ. Endocrine disrupting chemicals: Prepubertal exposures and effects on sexual maturation and thyroid activity in the female rat. A focus on the EDSTAC recommendations. *Critical Reviews in Toxicology* 30:135-196 (2000).

Cooper, RL, Stoker, TE, Tyrey, L, Goldman, JM, McElroy, WK. Atrazine disrupts the hypothalamic control of pituitary-ovarian function. *Toxicological Sciences* 53:297-307 (2000).

Cooper, RL, Goldman, JM, Stoker, TE. Neuroendocrine and reproductive effects of contemporary use pesticides. *Toxicology and Industrial Health* 15: 26-36 (1999).

BIOGRAPHICAL SKETCH

NAME: Zhishi Guo

POSITION TITLE: Environmental Scientist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Inner Mongolia University, Inner Mongolia, China	B.S.	1960-1965	Chemistry
University of North Carolina at Chapel Hill, NC	Ph.D.	1984-1987	Environmental Sciences & Engineering

PROFESSIONAL EXPERIENCE:

Environmental Scientist, Indoor Environment Management Branch, National Risk Management Research Laboratory, ORD, EPA (1997-Present)

Staff Scientist (1988), Senior Scientist (1991), Acurex Environmental Corp., Durham, NC (1988-1997).

Research Assistant, University of North Carolina, Department of Environmental Sciences and Engineering, Chapel Hill, NC (1984-1987).

Visiting Scientist, University of North Carolina, Department of Environmental Sciences and Engineering, Chapel Hill, NC (1983-84).

Chemical Engineer, Baotou Environmental Research Institute, Baotou, Inner Mongolia, China (1975-1983)

Chemistry Instructor, Baotou No.4 Middle School, Baotou, China (1965-1975).

SELECTED AWARDS AND HONORS :

Recipient: EPA OPPT Mission Award – PFOA Workgroup (2004)

Recipient: EPA ORD Bronze Medal for Promoting Strong Science in Agency Decisions (2003)

Recipient: EPA Bronze Medal for Extraordinary Achievement for the Project “Lead in Candle Emissions” and for Service to Epa for Progress Toward a New Standard Method for XRF (2002)

Co-recipient: EPA Level III Scientific and Technological Achievement Award (2000)

INVITED LECTURES/SYMPOSIA (Selected presentations from a total of 20 in the last 15 years):

1. Indoor air quality research methods and trend. Invited lectures at Peking University, Beijing, China (2004)
2. Testing of school supplies under the Buy Clean Initiative. Presented to Office of Pollution Prevention and Toxics and Office of Pesticides Program, Washington, DC (2003).
3. Parameter estimation for indoor source models. Invited speaker at *2nd Annual Environmental Systems Symposium at Syracuse* (2002)
4. Predicting pollutant emissions for indoor air quality. Presented to Office of Solid Waste, Washington, DC (2002)
5. Fine particulate matter emissions from candles. Presented at *Engineering Solutions to Indoor Air Quality Problems Symposium*, Research Triangle Park, NC (2000)

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Invited International Expert for a UN-sponsored indoor air quality study in South-western China (2004-05)
Member, International Scientific Committee for the 10th International Conference on Indoor Air Quality and Climate (to be held in 2005)

Member, Graduate School Faculty at the University of North Carolina at Chapel Hill (2002-present)

Member, Scientific and Technical Advisory Board for New York State Environmental Systems Center on *Assessing and Mitigating the Impact of Exposure to Multiple Indoor Contaminants on Human* (2001- 2004)

Member, Technical Advisory Committee for *the Consortium for Material Emissions Testing and Indoor Air Quality Modeling*, National Research Council Canada (1997-2000).

Member, American Society for Testing and Materials Committee D22 (Air) and Subcommittee D22.05 (Indoor Air) (2003-present)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member, EPA Perfluorooctanoic Acid ECA Workgroup (2003-present)

Member, ORD Perchloroethylene Dry Cleaning Residual Risk Rule-making Review Team (2003-present)

Member, EPA Schools Workgroup (2003-present)

Member, EPA Multi-year Planning Workgroup for Goal 8.2 Human Health (2002-03)

PUBLICATIONS (12 selected from a total of 32 peer-reviewed papers in last 15 years):

1. Guo, Z., Jetter, J. J., and McBrian, J. A. (2004), "Rates of Polycyclic Aromatic Hydrocarbon Emissions from Incense," **Bulletin of Environmental Contamination and Toxicity**, Vol. 76, pp 186-193.
2. Guo, Z. and Roache, N. F. (2003), "Overall mass transfer coefficient for pollutant emissions from small water pools under simulated indoor environmental conditions," **The Annals of Occupational Hygiene**, Vol. 47, pp 279-286.
3. Guo, Z. (2002), "Review of indoor emission source models – part 1. overview," **Environmental Pollution**, Vol. 120, pp 533-549.
4. Guo, Z. (2002), "Review of indoor emission source models – part 2. parameter estimation," **Environmental Pollution**, Vol. 120, pp 551-564.
5. Guo, Z., Mosley, R., Wasson, S., Fortmann, R., and McBrian, J. (2001), "Dissociation of sulfur hexafluoride in the presence of an indoor combustion appliance," **Journal of Air & Waste Management Association**, Vol. 51, pp. 616-622.
6. Guo, Z. (2000), "Development of a Windowed-based indoor air quality simulation package," **Environmental Modeling & Software**, Vol. 15, No. 4, pp. 403-410.
7. Guo, Z., Chang, J. C. S., Sparks, L. E., and Fortmann, R. C. (1999), "Estimation of the rate of VOC emissions from solvent-based indoor coating materials based on product formulation," **Atmospheric Environment**, Vol. 33, No. 8, pp. 1205-1215.

BIOGRAPHICAL SKETCH**NAME: Gary E. Hatch****POSITION TITLE: Supervisory Research Pharmacologist****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
Brigham Young University, Provo, Utah	B.S.	1969 -1972	Microbiology
Brigham Young University, Provo, Utah	M.S.	1972 -1973	Biochemistry
Univ. of Utah, Salt Lake City, Utah	Ph.D	1973 -1977	Pharmacology
Duke University, Durham, N.C.	Postdoc	1977 -1979	Toxicology

PROFESSIONAL EXPERIENCE:

Leader, Biochemical Toxicology Group, PTB, ETD, NHEERL, ORD, EPA Aug 1979 – present

Postdoctoral Research Associate, Depts. of Pharmacology and Medicine,
Duke University, Durham, NC. Jan 1977-Jul 1979

SELECTED AWARDS AND HONORS:

Recipient of five E.P.A. Scientific and Technology Achievement Awards

INVITED LECTURES / SYMPOSIA:

1. Pulmonary Effects of Particulate Matter: Sensory Irritation, Susceptibility to Infection and Oxidative Stress" Tsukuba, Japan. February, 2000
2. "Diets, Antioxidants and Environmental Influences" NIEHS, Res. Tri. Park, NC Mar 2001.
3. "Phosgene as an example of the C x T principle: The role of adaptation" Three Agency Risk Assessment Symposium, Cincinnati, Ohio, May, 2002.
4. "Environmental Research Utilizing Oxygen-18." Isotec Inc., Miamisburg, Ohio, May 2002.
5. "E.P.A. Studies and Research Needs in Bioterrorism," American Thoracic Society working group, Washington, D.C., Feb 2003.
6. Society of Toxicology symposium: "Use of oxygen-18 for detection of oxidative stress." Society of Toxicology Symposium on Oxidative Stress. Mar, 2003:
7. University of North Carolina: Lecture: "Biomarkers of Pulmonary Toxicity" October, 2004

ASSISTANCE/ LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Member: Society of Toxicology working group for comparison of intratracheal instillation and inhalation study methodologies. 1997-2000.

Duke Visiting Pulmonary Scholar Program, Organizing Committee, EPA representative, 2000-2002.

Reviewer: NIOSH program project: "Oxidant Injury to the Respiratory Tract." Sept. 1999.

Reviewer: WHO/ IPCS Acrolein Document, June 2001

Member: E.P.A. / Industry working group on ozonation of water and bromate mode of action. May, 2002

Co-organizer of NIEHS-EPA Rfp workshop: "Antioxidants, Diets and Environmental Influences." Mar, 2003

Member: American Thoracic Society task force on Bioterrorism. March, 2003

Member planning committee for NIEHS/ EPA study on "Biomarkers of Oxidative Stress" involving sixteen laboratories worldwide, 1997- present.

Adjunct Professor, University of North Carolina. 2002 - present. Member of thesis committees for Ph.D. candidates Brian Slezak and Deborah Burgin.

ASSISTANCE/ LEADERSHIP PROVIDED TO THE AGENCY:

Member: U.S. E.P.A. Office of Research and Development "Red Team" for applying science to the response to terrorist threats. Jan. 2004 - present.

Member: Air Toxics Research Strategy planning group: 2001-2003.

Co-investigator: Homeland Security Project entitled "Assessment of Residual Public Health Risk Associated with Chemical Decontamination of Buildings." Mar. 2003 - present.

Principal Investigator: Homeland Security Project entitled "Use of Sentinel Animals in Assessing Health Effects of Chemical Treats Indoors." Apr. 2003 - present.

PUBLICATIONS: (Published during the last 5 years of a total of 86 papers and book chapters)

1. Gunnison, A.F. and Hatch, G.E. 1999. Ozone induced inflammation in pre-pregnant, pregnant, and lactating rats correlates with ozone dose estimated by oxygen-18. *Am. J. Physiol. (Lung Cell. Mol. Physiol. 20)*: L332-L340.
2. Kodavanti, U.P., Schladweiler, M.C., Ledgeter, A.D., Watkinson, W.P. Campen, M.J., Winsett, D.W., Richards, J.R., Crissman, K.M., Hatch, G.E., and Costa, D.L. 2000. The spontaneously hypertensive rat as a model of human cardiovascular disease: Evidence of exacerbated cardiopulmonary injury and oxidative stress from inhaled emission particulate matter. *Toxicology and Appl. Pharmacology* 164: 250-263.
3. Kadiiska, M.B., Gladen, B.C., Baird, D.D., Dikalova, A.N. Sohol, R.S., Hatch, G.E., Jones, D.P., Mason, R.P., and Barrett, J.C. 2000. Biomarkers of oxidative Stress Study: Are plasma antioxidants markers of CCl₄ poisoning? *Free Radical Biology and Medicine* 28: 838-45.
4. Campen, M.J., Norwood, J. McKee, J.L, Mebane, R., Hatch, G.E., Watkinson, W.P. 2000. Ozone-induced hypothermia and bradycardia in rats and guinea pigs in nose-only or whole-body inhalation systems. *J. Thermal Biol.* 25:81-89.
5. Madden, M.C., Richards, J.H., Dailey, L.A., Hatch, G.E., and Ghio, A.J. 2000. Effect of ozone on diesel exhaust particle toxicity in rat lung. *Toxicol. And Appl. Pharm.* 168: 140-148.
6. Slezak, B.P., Hatch, G.E., Devito, M.J., Slade, R., Crissman, K., Birnbaum, L.S. 2000. Oxidative stress in female B6C3F1 mice following acute and subchronic exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). *Toxicological Sciences* 54: 390-8.
7. Kodavanti, U.P., Schladweiler, M.C., Ledgeter, A.D., Watkinson, W.P. Campen, M.J., Winsett, D.W., Richards, J.R., Crissman, K.M., Hatch, G.E., and Costa, D.L. 2000. The spontaneously hypertensive rat as a model of human cardiovascular disease: Evidence of exacerbated cardiopulmonary injury and oxidative stress from inhaled emission particulate matter. *Toxicology and Appl. Pharmacology* 164: 250-263.
8. Driscoll, K.E., Costa, D.L., Hatch, G.E., Henderson, R., Oberdorster, G., Salem, H., and Schlesinger, R.B. 2000. Intratracheal instillation as an exposure technique for the evaluation of respiratory tract toxicity: Uses and limitations. *Toxicological Sciences* 55: 24-35.
9. Norwood, J.Jr., Ledbetter, A.D., Doerfler, D.L, and Hatch, G.E. 2001. Residual oil fly ash inhalation in guinea pigs: Influence of ascorbate and glutathione depletion. *Toxicological Sciences* 61: 144-153.
10. Samet, J.M., Hatch, G.E., Horstman, D., Steck, S.E., Arab, L., Bromberg, P.A., Levine, M., McDonnell, W.F., and Devlin, R.B. 2001. Effect of antioxidant supplementation on ozone-induced lung injury in human subjects. *Am. J. Respir. Crit. Care Med.* Sep 1;164(5):819-825.
11. Sun, G., Crissman, K., Norwood, J., Richards, J., Slade, R., and Hatch, G.E. 2001. Oxidative interactions of synthetic lung epithelial lining fluid with metal-containing particulate matter. *Am. J. Physiol Lung Cell Mol. Physiol* 281: L807-15.
12. Hatch, G.E., Kodavanti, U., Crissman, K., Slade, R., and Costa, D. 2001. An "injury-time integral" model for extrapolating from acute to chronic effects of phosgene. *Toxicology and Industrial Health.* 17: 285-293.
13. Romieu, I., Sienra-Monge, J.J, Ramirez-Aguilar, M., Tellez-Rojo, M.M., Moreno-Macias, H., Reyes-Ruiz, N.I., Rio-Navarro, B.E., Ruiz-Navarro, X.M., Hatch, G.E., Slade, R., Hernandez-Avila, M. 2002. Antioxidant supplementation and lung functions among asthmatic children exposed to high levels of air pollutants. *Am. J. Respir. Crit. Care Med.* 166: 703-709.
14. Kongerud, J., Crissman, K., Hatch, G.E., Alexis, N. 2003. Ascorbic acid is decreased in induced sputum of mild asthmatics. *Respiratory Research*, 15:101-109.
15. Singh, Pramila, Mary Daniels, Darrell W. Winsett, Judy Richards, Donald Doerfler, Gary Hatch, Kenneth B. Adler, and M. Ian Gilmour. 2003. Phenotypic comparison of allergic airway responses to house dust mite in three rat strains. *Am J Physiol Lung Cell Mol Physiol* 284: L588-L598.
16. Alfaro MF, Putney L, Tarkington BK, Hatch GE, Hyde DM, Schelegle ES. 2004. Effect of rapid shallow breathing on the distribution of ¹⁸O-labeled ozone reaction product in the respiratory tract of the rat. *Inhal Toxicol.* 2004 Feb;16(2):77-85

BIOGRAPHICAL SKETCH

NAME: Richard C. Hertzberg

POSITION TITLE: Mathematical Statistician

EDUCATION:

Institution	Degree	Year	Field of Study
Harvey Mudd College, Claremont, CA	B.S.	1968	Mathematics
University of Washington, Seattle, WA	Ph.D.	1977	Biomathematics Dissertation: A multinomial-Markov model with approximate analysis for competitive enzyme inhibition

Professional Experience:

- 2004-present Mathematical statistician, National Center for Environmental Assessment-Cincinnati (NCEA-Cin), Office of Research and Development, U.S. EPA.
- 2003-2004 Mathematical statistician, Rapid Risk Team Leader, National Homeland Security Research Center, Office of Research and Development, U.S. EPA.
- 1980-2003 Mathematical statistician, National Center for Environmental Assessment-Cincinnati (NCEA-Cin), Office of Research and Development, U.S. EPA. Mixtures Project Team Leader, NCEA-Cin (1996-1999). Project coordinator of MIXTOX database on toxicologic interactions (1985-1999).
Chair of EPA Technical Panel on mixture risk guidelines 1984-1986, 1990-2001.
- 1999-2000 Adjunct faculty, Northwestern University, member of MS advisory committee for Zachariah Schreiber, Environmental Engineering.
- 1997-1998 Adjunct faculty, Texas A&M University, member of Ph.D. advisory committee for Shanna Collie.

Selected Awards and Honors::

- EPA Silver Medal, 2003. "Framework for cumulative risk assessment." Workgroup chair.
- EPA Silver Medal, 2002. "Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures." Workgroup chair.
- EPA Superior Accomplishment or Achievement Award, 2001. For final revision of the EPA's "Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures," and for workgroup leadership.
- EPA/NCEA Peer Awards, 2001. Winner (with six others from NCEA) of Teamwork Award for the 2001 "Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures," NCEA-C-0148.

Invited Lectures/Symposia:

- Hertzberg, R.C. "Interaction-based Hazard Index: refining the method through case studies," presented at the Society for Risk Analysis annual meeting, December 8, 2004, Palm Springs, CA.
- Hertzberg, R.C. "Mixtures Research at EPA," presented at the ORD workshop "STAR Research: Human Health," October 28-29, 2004, Philadelphia, PA.
- Hertzberg, R.C. "Short-term toxicity and dose-response extrapolation methods relevant to emergency response and cleanup of contaminated buildings," presented at the interagency Toxicology and Risk Assessment Conference, April 27, 2004, Cincinnati, OH.
- Hertzberg, R.C. and L. Teuschler. "Ideas for Evaluating Quantitative Formulas for Dose-Response Assessment of Chemical Mixtures," presented at the conference, Application of Technology to Chemical Mixture Research, January 9-11, 2001, Fort Collins, CO.
- Hertzberg, R.C. Panel discussant on "Mixtures: Assessing the Potential for Joint Toxic Action,"

at the ATSDR States Meeting, Emerging Issues In Environmental Health, September 12-14, 2000, San Antonio, TX.

Assistance Leadership Provided to the Agency:

Senior scientist for mixtures risk assessment, representing U.S. EPA
Senior scientist for quantitative health risk assessment, representing Office of Research and Development, U.S. EPA
Co-chair of the interagency Mixed Exposures Research Group, presently comprised of ten federal and three state agencies (1998-present)
Member, U.S. EPA Risk Assessment Forum Technical Panel on Cumulative Risk

Assistance/Leadership Provided to the Scientific Community:

External Advisory Committee, NIOSH Mixed Exposure Research Team (1998-present)
External Review Panel, ATSDR Mixture Risk Guidance and Interaction Profiles (1998-present)
Expert Review Panel, Health Council of the Netherlands Mixture Risk Guidance Report (1999-2003)
Advisory Subcommittee of Biostatisticians for the National Environmental Respiratory Center, Lovelace Institute, toxicologic research on complex combustion mixtures (1999-present)
Advisory Workgroup for the Proposed EPA/NAS Cooperative Agreement on Cumulative Risk Research (2000-2002)
Office of Pesticide Program's Cumulative Risk Work Group, which produced guidance materials in support of the 1996 FQPA (1997-2001).

Publications (1999-present):

Hertzberg R.C. 2002. Extrapolation. In: Encyclopedia of Environmetrics, A.H. El-Shaarawi and W.W. Piegorsch, eds. John Wiley and Sons, Ltd., Chichester: 732-739.
Hertzberg R.C. and M.M. MacDonell. 2002. Synergy and other ineffective mixture risk definitions. The Science of The Total Environment. 288(1-2): 31-42.
Hertzberg, R.C., G. Rice and L. Teuschler, 1999. Methods for health risk assessment of combustion mixtures. In: Hazardous Waste Incineration: evaluating the human health and environmental risks. S. Roberts, C. Teaf and J. Bean, eds.; Lewis, Boca Raton:105-148.
Hertzberg, R.C. and L. Teuschler, 2002. Evaluating quantitative formulas for dose-response assessment of chemical mixtures. Environmental Health Perspectives 110(6):965-970.
Teuschler, L.K., C. Gennings, W.M. Stiteler, R.C. Hertzberg, J.T. Colman, A. Thiyagarajah, J.C. Lipscomb, W.R. Hartley, J-E. Simmons. 2000. A Multiple-Purpose Design Approach to the Evaluation of Risks from Complex Mixtures of Disinfection By-Products (DBPs). Drug and Chemical Toxicology. 23(1):307-321.
Teuschler, L.K., J.P. Groten, R.C. Hertzberg, M. Mumtaz, G. Rice. 2001. Environmental Chemical Mixtures Risk Assessment: Current Approaches and Emerging Issues. Comments on Toxicology. 7(5-6):453-493.
U.S. EPA (2003) U.S. EPA. 2003a. Framework for Cumulative Risk Assessment. EPA/630/P-02/001F. Risk Assessment Forum, Washington, DC, May.
U.S. EPA. (2000) Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures. NCEA-C-0148. 208pp. Workgroup chair and principal author: R. Hertzberg.

BIOGRAPHICAL SKETCH

NAME: Vance Ross Highsmith

POSITION TITLE: Assistant Laboratory Director

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of North Carolina, Chapel Hill	B.A.	1968	Chemistry/Mathematics
University of North Carolina, Chapel Hill	M.S.	1974	Chemistry

PROFESSIONAL EXPERIENCE :

Assistant Laboratory Director, NERL, ORD	October 2000 - present
Chief, Human Exposure Analysis Branch, NERL, ORD	February 1997 - October 2000
Acting Director, Atmospheric Methods Research Division, AREAL, ORD	October 1996 - February 1997
Chief, Methods Branch, AMRD, AREAL, ORD	January 1995 - October 1996
Chief, Indoor Air Research Section, HEFRD, AREAL, ORD	January 1992 - January 1995
Physical Scientist in various ORD Organizations (AREAL, EMSL, QAEML)	January 1975 - January 1992

SELECTED AWARDS AND HONORS :

Scientific and Technological Achievement Award (1998) Characterizing Indoor Particle Concentrations Associated with the Use of Tap Water in Portable Humidifiers

OPPT Mission Award (2004) PFOA Workgroup

Bronze Medal

1985 - In recognition of outstanding efforts and performance in the development of PM-10 methodology and associated monitoring requirements

1994 - For developing innovative administrative and scientific approaches in assessing the indoor air quality of the three EPA headquarters buildings

1995 - For initiating and designing the world's first, largest and most complete database on indoor air quality in office buildings

2001 - In recognition of the NERL/NHEERL Panel Studies Research Team who designed and executed vital epidemiological/exposure particulate matter research studies

2004 - For leading ORD research planning by completing ORD multi-year plan to chart the course for future ORD research

INVITED LECTURES/SYMPOSIA:

1. Evans, G.F., Highsmith, V.R., Sheldon, L.S., Suggs, J.C., Williams, R.W., Zweidinger, R.B., Creason, J.P., Walsh, D.B., Rodes, C.E., and Lawless, P.A. The 1999 Fresno particulate matter exposure studies: comparison of community, outdoor, and residential PM mass measurements. Presented at: PM 2000 AWMA Conference, Charleston, SC, January 24-28, 2000.

2. Rodes, C.E., Lawless, P.A., Evans, G.F., Highsmith, V.R., Sheldon, L.S., Williams, R.W., Vette, A.F., and Creason, J.P. The relationships between personal PM exposures for elderly populations and indoor and outdoor concentrations for three retirement center scenarios. Presented at: PM 2000 AWMA Conference, Charleston, SC, January 24-28, 2000.

3. Sheldon, L.S., Williams, R.W., Highsmith, V.R., Rodes, C.E., Creason, J.P., and Walsh, D.B. An overview of EPA's human exposure panel studies. Presented at: PM 2000 AWMA Conference, Charleston, SC, January 24-28, 2000.

4. Sheldon, L.S., Williams, R.W., Zweidinger, R.B., Evans, G.F., Highsmith, V.R., Suggs, J.C., Rodes, C.E., and Creason, J.P. Lessons learned from four exposure panel studies: the U.S. EPA's particulate matter studies involving elderly cohorts. Presented at: PM 2000 AWMA Conference, Charleston, SC, January 24-28, 2000.

5. Vette, A.F., Rea, A.W., Lawless, P.A., Rodes, C.E., Evans, G.F., Highsmith, V.R., Creason, J.P., and Sheldon, L.S. Indoor/outdoor aerosol concentration ratios during the 1999 Fresno particulate matter exposure studies as a function of size, season, and time of day. Presented at: PM 2000 AWMA Conference, Charleston, SC, January 24-28, 2000.

6. Wallace, L.A., Sheldon, L.S., Highsmith, V.R., Zweidinger, R.B., Suggs, J.C., and Williams, R. Human Exposure of High-Risk Subpopulations to Particulate Matter. Presented at: PM 2000 AWMA Conference, Charleston, SC, January 24-28, 2000.

7. Cohen-Hubal, E.A., Highsmith, V.R., and Bond, A.E. Impact of Agricultural Use of Pesticides on Applicator

Spouse and Children. Presented at: ISEA 2000 Exposure Analysis in the 21st Century: Integrating Science, Policy and Quality of Life, Monterey Peninsula, CA, October 24-27, 2000

8. Leovic, K.W., Ejire, A., Williams, R.W., Highsmith, V.R., and Sheldon, L.S. Improving the scientific community's ability to characterize human exposures in low SES areas: participant recruitment and retention. Presented at: ISEA 2000 Exposure Analysis in the 21st Century: Integrating Science, Policy and Quality of Life, Monterey Peninsula, CA, October 24-27, 2000.

9. Sheldon, L.S., Rea, A.W., Vette, A.F., Howard-Reed, C., Williams, R.W., Highsmith, V.R., Rodes, C.E., and Lawless, P.A. The contribution of particle resuspension to indoor and personal air concentrations. Presented at: ISEA 2000 Exposure Analysis in the 21st Century: Integrating Science, Policy and Quality of Life, Monterey Peninsula, CA, October 24-27, 2000.

10. Williams, R.W., Highsmith, V.R., Sheldon, L.S., Rea, A.W., Vette, A.F., Suggs, J.C., Leovic, K.W., Howard-Reed, C., Saunders, G., Ejire, A., Rodes, C.E., Thornburg, J., and Lawless, P.A. Preliminary findings from the NERL Research Triangle Park particulate matter panel study. Presented at: ISEA 2000 Exposure Analysis in the 21st Century: Integrating Science, Policy and Quality of Life, Monterey Peninsula, CA, October 24-27, 2000.

11 Leovic, K.W., Highsmith, V.R., Sheldon, L.S., Williams, R.W., Cohen-Hubal, E.A., Morgan, M.K., Stout, II, D.M., and Ejire, A. Recruiting, retaining, and reporting exposure study results to participants and the public. Presented at: 11th Annual Meeting of the International Society of Exposure Analysis, Charleston, SC, November 4-8, 2001.

12. Leovic, K.W., Sheldon, L.S., Thomas, K.W., Highsmith, V.R., Tulve, N.S., Robertson, G.L., Hammerstrom, K., Quackenboss, J.J., Melnyk, L.J., Berry, M., Pellizari, E., Lebowitz, M., and Ryan, P.B. Lessons learned from the National Human Exposure Assessment Survey (NHEXAS). Presented at: International Society of Exposure Analysis 2002 Conference, Vancouver, Canada, August 11-15, 2002.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

International Society of Exposure Analysis

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Lead Author, Safe Food Multiple Year Plan

NERL Representative, Pesticides/Toxics Research Coordination Team

NERL Representative, Multimedia Research Coordination Team

NERL Representative, Human Health Workgroup, Multimedia Research Coordination Team

NERL Representative, EDCs Workgroup, Multimedia Research Coordination Team

ORD Lead, Technical Support for OPPT/OPPTS PFOA Enforceable Consent Agreement Negotiations

ORD Lead, Characterization of Pesticide Exposures in US Daycares and Residences (collaborative study with HUD and CPSC)

NERL Lead, Technical Support for EPA Asbestos Coordination Team research plan

NERL Lead, ORD Indoor Air Research Program

NERL Lead, EPA Large Buildings Research Program

NERL Lead, Investigation of Indoor Air Quality at EPA Headquarters Buildings

NERL Lead, Investigation of Indoor Air Quality at Library of Congress

NERL Lead, Integrated Air Cancer Project

PUBLICATIONS:

1. Evans, G.F., Highsmith, V.R., Sheldon, L.S., Suggs, J.C., Williams, R.W., Zweidinger, R.B., Creason, J.P., Walsh, D., Rodes, C.E., and Lawless, P.A. The 1999 Fresno particulate matter exposure studies: comparison of community, outdoor, and residential PM mass measurements. Journal of the Air & Waste Management Association 50 (11):1887-1896 (2000). EPA/600/J-01/268.

2. Vette, A.F., Rea, A.W., Lawless, P.A., Rodes, C.E., Evans, E.G., Highsmith, V.R., Creason, J.P., and Sheldon, L.S. Characterization of indoor-outdoor aerosol concentration relationships during the Fresno PM exposure studies. Aerosol Science and Technology 34 (1):118-126 (2001). EPA/600/J-01/114.

3. Williams, R.W., Wallace, L.A., Suggs, J.C., Evans, E.G., Creason, J.P., Highsmith, V.R., Sheldon, L.S., Rea, A.W., Vette, A.F., Zweidinger, R.B., Leovic, K.W., Norris, G.A., Landis, M.S., Howard-Reed, C., Stevens, C., Conner, T.L., Rodes, C.E., Lawless, P.A., Thornburg, J., Liu, L.J.S., Kalman, D., Kaufman, J., Koenig, J.Q., Larson, T.L., Lumley, T., Sheppard, L., Brown, K., Suh, H., Wheeler, A., Gold, D., Koutrakis, P., and Lippmann, M.

Preliminary particulate matter mass concentrations associated with longitudinal panel studies "assessing human exposures of high risk subpopulations to particulate matter". 2001. EPA/600/R-01/086 (NTIS PB2002-100444).

NAME: Annie M. Jarabek	POSITION TITLE: <u>Special Assistant to the Associate Director for Health</u>
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EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Notre Dame	B.S.	1974 -1978	Biology
University of Cincinnati Medical Center		1978-1986	Toxicology
North Carolina State University		1999-2000	Biomathematics

Professional Experience:

- 1999–present Special Assistant to the Associate Director for Health, U.S. Environmental Protection Agency, Office of Research and Development, National Center for Environmental Assessment, Washington, DC
- 1999–present Visiting Scientist, CIIT Centers for Health Research, Research Triangle Park, NC
- 1998–1999 Toxicologist/Risk Assessor, U.S. Environmental Protection Agency, Office of Research and Development, National Center for Environmental Assessment, Research Triangle Park, NC
- 1997 Acting Senior Health Scientist, U.S. Environmental Protection Agency, Office of Research and Development, National Center for Environmental Assessment, Washington, DC
- 1987–1997 Toxicologist/Risk Assessor, U.S. Environmental Protection Agency, Office of Research and Development, National Center for Environmental Assessment, Research Triangle Park, NC
- 1986–1987 Toxicologist, U.S. Environmental Protection Agency, Office of Research and Development, Environmental Criteria and Assessment Office, Cincinnati, OH
- 1980 –1987 Technician / Faculty (Part-Time), Occupational Health Clinic, University of Cincinnati Medical Center, Cincinnati, OH

Selected Awards and Honors: Honors:

- 1999. Superfund National Notable Achievement Award, “Superfund Risk Assessment Team of the Year, for recognition of the concerned participation on the Nationwide-Interagency Perchlorate Steering Committee which has resulted in the identification and evaluation of innovative technologies to address the public health of millions of people”, U.S. EPA Region 9.
- 2001. Best Paper in Risk Assessment Application, presented at the 40th Annual Meeting of the Society of Toxicology, San Francisco, CA, by the Risk Assessment Specialty Section for the manuscript, A Biologically Based Risk Assessment for Vinyl Acetate-Induced Cancer and Noncancer Inhalation Toxicity; *Toxicol. Sci.* 51, 19–35, 1999.
- 2001. U.S. EPA ORD NCEA Intramural Grant Award. Principal EPA investigator. *Development of Bayesian Updating Techniques to Incorporate Mechanistic Information Across Species*, Cooperative agreement with Department of Civil and Environmental Engineering/Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA.
- 2003. Bronze Medal for Assessment Factors Workgroup — In recognition for the rapid, efficient, and successful completion of a quality support document produced under intense deadlines and scrutiny, U.S. EPA.

Assistance/Leadership Provided to the Scientific Community:

- 2001 – present. Bioneers
- 2001 – 2002. Vice-President Elect, Risk Assessment Specialty Section, Society of Toxicology
- 2002 – 2003. Vice-President, Risk Assessment Specialty Section, Society of Toxicology
- 2004 – present. President, Risk Assessment Specialty Section, Society of Toxicology
- 2004 – present. Awards Committee, Society of Toxicology

2002 – present. Editorial Board, *Nonlinearity* in Biology, Toxicology and Medicine

Publications:

Merrill, E.A., R.A. Clewell, P.J. Robinson, A.M. Jarabek, J.M. Gearhart, T.R. Sterner, and J.W. Fisher. (2004) PBPK Model for Iodide and Perchlorate Kinetics and Perchlorate-Induced Inhibition of Radioiodide Uptake in Humans. To: *Toxicol. Sci. In Press*.

U.S. EPA. 2003. Principal Author. *Disposition of Comments and Recommendations for Revisions to "Perchlorate Environmental Contamination: Toxicological Review and Risk Characterization External Review Draft (January 16, 2002)"*. Office of Research and Development, Washington D.C. EPA/600/R-03/031. October.

Bennett, W. D., Zeman, K. L., and Jarabek, A. M. (2003). Nasal contribution to breathing with exercise: Effect of race and gender. *J. Appl. Physiol.* 95, 497-503.

Baird, J. S. S., Slob, W., and Jarabek, A. M. (2001). Probabilistic Noncancer Risk Estimates. *Comm. Toxicol.* 7, 541–574.

Andersen, M. E. and Jarabek, A. M. (2001). Nasal Tissue Dosimetry — Issues and Approaches for "Category 1" Gases: A report on a meeting held in Research Triangle Park, NC, 11–12 February, 1998. *Inhal. Toxicol.* 13, 415–436.

Hanna, L. M., Lou, S.-R., Su, S., and Jarabek, A. M. (2001). Mass Transport Analysis: Inhalation RfC Methods Framework for Interspecies Dosimetric Adjustment. *Inhal. Toxicol.* 13, 437–463.

Dietert, R. R., Etzel, R. A., Chen, D., Halonen, M., Holladay, S. D., Jarabek, A. M., Landreth, K., Peden, D. B., Pinkerton, K., Smialowicz, R. J., and Zoetis, T. (2000). Windows of vulnerability for the immune and respiratory systems. *Environ. Health Perspect.* 108, 483–490.

ILSI Risk Science Institute Workshop Participants (2000). The relevance of the rat lung response to particle overload for human risk assessment: A workshop consensus report. *Inhal. Toxicol.* 12, 1–17.

Bogdanffy, M. S., Sarangapani, R., Plowchalk, D. R., Jarabek, A. M., and Andersen, M. E. (1999). A biologically-based risk assessment for vinyl-acetate induced cancer and noncancer toxicity. *Toxicol. Sci.* 51, 19–35.

BIOGRAPHICAL SKETCH

NAME: **Robert J. Kavlock**

POSITION TITLE: **Director**

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Miami	B.S.	1973	Biology
University of Miami	Ph.D.	1977	Embryology

PROFESSIONAL EXPERIENCE:

2004- Special Assistant (Computational Toxicology) to NHEERL Director
1999-2000: Acting Associate Director for Health, NHEERL (June-January)
1989-2004: Director, Reproductive Toxicology Division, NHEERL
1981-1989: Chief, Perinatal Toxicology Branch, DTD, HERL, USEPA, RTP, NC
1979-1981: Res. Biologist, Perinatal Toxicology Branch, DTD, HERL, USEPA, RTP, NC
1977-1979: Research Associate, Dept. of Biology, Univ. of Miami, Coral Gables, FL
Adjunct Associate Professor, Department of Pharmacology, Duke University
Adjunct Assistant Professor, Department of Zoology, NCSU

SELECTED AWARDS AND HONORS:

US EPA Bronze Medals, 2004, Computational Toxicology Design Team,

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Society of Toxicology, including Developmental and Reproductive Toxicology Specialty Section and the North Carolina Society of Toxicology; Teratology Society Toxicological Sciences (1994-2000); Teratogenesis, Carcinogenesis and Mutagenesis (to 2003); Journal of Toxicology and Environmental Health, Part B (current); Journal of Children's Health (2002-); Birth Defects Research, Part B (2003-present); President, Teratology Society, 2001; President, North Carolina Society of Toxicology, 1999; CMA/NIEHS/EPA Workshop on Research Needs for the Risk Assessment of Endocrine Disruptors, 1999. NTP/NIEHS Endocrine Disruptors Low-Dose Peer Review, 2000; EPA/NIEHS/ACC Scientific Frontiers in Developmental Toxicity Risk Assessment, 2002, EPA Workshop on a Framework for Computational Toxicology, 2003; Teratology Society Symposium on Computational Biology, 2004. WHO/IPCS Working Group on Principles for Evaluating Health Risks to Children, 2003-present; Chair, WHO/IPCS and Japan MOE Workshop on Research Needs for Endocrine Disruptors, 2003; ILSI Workgroup on Human Framework for Using MOA Information to Evaluate Human Relevance of Animal Toxicity Data, 2002-2004; American Chemistry Council Focal Area Leader, Long Range Research Initiative, 2002- present; American Chemistry Council Science Policy Committee (Public Member), 2001- present; Reviewer, European Commission Framework Calls, 2001, 2002, 2004; American Chemistry Council Endocrine Implementation Planning Group (Public Member), 2000- ;Chair, NTP Center for Evaluation of Risk to Human Reproduction Expert Panel on Phthalates, 1999-2000; Advisor, United Nations University Program on Endocrine Disruptors in the Coastal Environment of Southeast Asia, 1999-2003; US/EU Workshop on Endocrine Disruptor Research Needs, Rapporteur, 1999; NIOSH Working Group to Develop Research Priorities for Reproductive Epidemiology, 1999; IPCS/WHO Steering Group for International State-of-Science Assessment of Endocrine Disruptors, 1997-2002; NIH ALTX-4 Study Section, Standing Member, 1997-2001; CIIT Science Advisory Committee, 1996-2001; CIIT Endocrine Toxicology Technical Panel, 1996-2001; CENR/NSTC/OSTP/EOP Working Group on Endocrine Disruptors, 1995-2000; IARC Monograph Working Groups, Volumes 36, 41, 47, 54, 58, 73, and 79; IARC Handbooks of Cancer Prevention, Volumes 2 and 4;

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY

Chair, EPA/ORD Computational Toxicology Design Team (2003) and Implementation Steering Group, 2004-present ; NHEERL Genomics Program Steering Committee, 2001-2002; Endocrine Disruptor Methods Validation Subcommittee (EPA FACA), 2001-2003; Co-Organizer, Japanese NIES/US EPA Workshop on EDCs, Tokyo, February 2000; NHEERL Human Health Research Strategy Implementation Team, 2001-present.

PUBLICATIONS (for 1999-present)

- Cummings, A and Kavlock, RJ (2004). A systems biology approach to developmental toxicology. *Repro. Toxicol.* (in press).
- Cummings, A and Kavlock, RJ (2004). Gene-environment interactions: A review of effects on reproduction and development. *Critical Review in Toxicology* (in press).
- Wery N, Narotsky MG, Pacico N, Kavlock RJ, Picard JJ, Gofflot F. (2003). Defects in cervical vertebrae in boric acid-exposed rat embryos are associated with anterior shifts of hox gene expression domains. *Birth Defects Res Part A* 67(1):59-67.
- Daston, GP, Cook, JC and Kavlock, RJ (2003). Uncertainties for endocrine disruptors: our view of progress. *Tox. Sci.* 74:245-252
- Kavlock, RJ, Boelkelheide, K, Chapin, R, Cunningham, M, Faustman, E, Foster, P, Golub, M, Henderson, R, Hinberg, I, Little, R, Seed, J, Tabacova, S, Tyl, R, Williams, P and Zacheanski, T (2002). NTP Center for the Evaluation of Risk to Human Reproduction: phthalates expert panel report on the reproductive and developmental toxicity of di(2-ethylhexyl)phthalate. *Reprod. Toxicol.* 16:529-653.
- Rockett, JC, Kavlock, RJ, Lambright, C, Parks, LG, Schmid, JE, Wilson, VS, Wood, C and Dix, DJ (2002). DNA arrays to monitor gene expression in rat blood and uterus following 17 β -estradiol exposure: biomonitoring environmental effects using surrogate tissues. *Tox. Sci.* 69:49-59
- Damstra T, Barlow, S, Bergman A, Kavlock R and Van Der Kraak, G, editors (2002). *International Programme On Chemical Safety Global Assessment Of The State-Of-The-Science Of Endocrine Disruptors.* World Health Organization, Geneva.
- Rogers, JM and RJ Kavlock (2001). Developmental toxicity. In: Casarett & Doull's *Toxicology: The Basic Science of Poisons*, 6th edition. Curtis D. Klaassen, editor. McGraw-Hill, Inc., New York, NY, 301-331.
- Setzer RW, Lau C, Mole ML, Copeland MF, Rogers JM, Kavlock RJ. (2001). Toward a biologically based dose-response model for developmental toxicity of 5-fluorouracil in the rat: a mathematical construct. *Toxicol Sci.*; 59(1):49-58.
- Moorman, WJ, Ahlers, HW, Chapin, RE, Daston, GP, Foster, PM, Kavlock, RJ, Morawetz, JS, Schnorr, TM and Shrader, SM (2000). Prioritization of NTP reproductive toxicants for field studies. *Reproductive Toxicology* 14(4):293-301.
- Lau, C, Andersen, ME, Crawford-Brown, DJ, Kavlock, RJ, Kimmel, CA, Knudsen, TB, Muneoka, K, Rogers, JM, Setzer, RW, Smith, G and Tyl, R (2000). Evaluation of biologically-based dose-response modeling for developmental toxicity: a workshop report. *Regul. Toxicol. Pharmacol.* 31 (2 Pt 1):190-199.
- Goldman, JM, Laws, SC, Balchak, SK, Cooper, RL and Kavlock, RJ (2000). Endocrine-disrupting chemicals: prepubertal exposures and effects on sexual maturation and thyroid activity in the female rat. A focus on the ESTAC recommendations. *Critical Reviews in Toxicology* 30(2):135-196.
- Barlow, S, RJ Kavlock, JA Moore, SL Schantz DM Sheehan, DL Shuey, and JM Lary (1999). Teratology Society position paper: The developmental toxicity of endocrine disruptors to humans. *Teratology* 60(6):365-375.

BIOGRAPHICAL SKETCH**NAME: Elaina M. Kenyon****POSITION TITLE: Toxicologist****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
University of Rhode Island	B.S.	1981	Resource Development
Texas A&M University	M.S.	1983	Veterinary Epidemiology
University of Massachusetts	Ph.D.	1990	Toxicology/Public Health

PROFESSIONAL EXPERIENCE:

9/92 - 1/95 Postdoctoral Fellow CIIT, Research Triangle Park, NC
8/91 - 8/92 Associate ENVIRON Corporation, Princeton, NJ
9/89 - 7/91 Postdoctoral Research Associate University of Massachusetts Medical Center
4/76 - 8/81 Laboratory Technician U.S. Environmental Protection Agency, Narragansett, RI

PROFESSIONAL SOCIETIES:

Society of Toxicology, Full member (member Biological Modeling Specialty Section: treasurer BMSS, 2004)
North Carolina Chapter, Society of Toxicology (Secretary-Treasurer, 2004)
Society for Risk Analysis, National
RTP Chapter, Society for Risk Analysis (Treasurer, 1994-2000, Councilor 2000-present)

SELECTED AWARDS AND HONORS:

2004 Bronze Medal – Promoting Strong Science in Agency Decisions
Certification: Diplomate, American Board of Toxicology, 1993 (recertified 1998, 2003)
2001 Best Presentation Award, Biological Modeling Special Section, Society of Toxicology

INVITED LECTURES/SYMPOSIA:

1. "Incorporating Mechanistic Insights in a PBPK Model for Arsenic." Society for Environmental Geochemistry and Health 5th International Conference on Arsenic Exposure and Health Effects, San Diego, CA (7/14-18/02).
2. "The Impact of Selenium Status on the Metabolism and Disposition of Arsenic and Its Implications for Epidemiologic Investigations." Society for Environmental Geochemistry and Health 4th International Conference on Arsenic Exposure and Health Effects, San Diego, CA (6/18-22/00).

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

1. Member, Secretary's Scientific Advisory Board for Air Toxics, State of North Carolina (1996-present)
2. Member, Editorial Board for journal *Toxicology* (1996-present)
3. Member, Toxicology Advisory Board, Art and Creative Materials Institute (1997-present)
4. Peer Review Panel for Resorcinol B Toxicology Excellence for Risk Assessment (TERA), Cincinnati, OH, March 18-19, 2003.
5. Temporary Advisor, World Health Organization, International Programme on Chemical Safety, Task Group Meeting on Arsenic and Arsenic Compounds, Brisbane Australia, November 15-19, 1999.
6. Grant Review Committees: (1) NIH, NIEHS, Environmental Health Sciences Review Committee B temporary member, 1998, 1999 (training center grants); (2) NIH, NIEHS, Special Emphasis Panel, Superfund Basic Research Program, 1999, 2004; (3) American Chemistry Council, Long Range Research Initiatives RfP No. NT-01-04 APhysiological Parameters and Physiologically Based Pharmacokinetic Modeling for the Perinatal Period, November 2002.
7. Invited Participant: International Life Sciences Institute, Risk Sciences Institute, Workshop to Develop a Framework for Cumulative Risk Assessment, Sept 12-17, 1998.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY

1. Member, Interspecies Scaling Task Group (Risk Assessment Forum Task Group to write guidance document), 2002 - present.
2. Member, Metals Assessment Framework Task Group (white paper co-author, writing team for metals assessment framework document), 2002 - present
3. Member, Institutional Animal Care and Use Committee, U.S. EPA, NHEERL (1998-2003)
4. Member, Drafting Group for Arsenic Research Plan (contributing scientist on final agency document). 1997-8.
5. Member, MMT Health Research Team. 1999-present.
6. NHEERL (ORD) Representative, Agencywide Arsenic Work Group. 1999-2002
7. Member, Air Toxics Research Implementation Planning Committee, 2000-2004.

PUBLICATIONS (From January 1, 1999)

1. Benignus, V.A., Coleman, T., Eklund, C.R., and Kenyon, E.M. 2004. A general physiological and toxicokinetic model for simulating complex toluene exposure scenarios in humans. *Toxicology Mechanisms and Methods*, submitted.
2. Kenyon, E.M., Del Razo, L.M., Hughes, M.F., and Kitchin, K.T. 2004. An Integrated Pharmacokinetic and Pharmacodynamic Study of Arsenite Action. 2. Heme Oxygenase Induction in Mice. *Toxicology*, in press.
3. Himmelstein, M.W., Carpenter, S.C., Evans, M.V., Hinderliter, P.M., and Kenyon, E.M. 2003. Kinetic Modeling of β -chloroprene metabolism: II. The application of physiologically based modeling for cancer dose response analysis. *Toxicological Sciences*, 79:28-37.
4. Hughes, M.F., Kenyon, E.M., Edwards, B.C., Mitchell, C.T., Del Razo, L.M., and Thomas, D.J. 2003. Accumulation and metabolism of arsenic in mice after repeated oral administration of arsenate. *Toxicology and Applied Pharmacology* 191:202-210.
5. Easterling, M.R., Styblo, M., Evans, M.V., and Kenyon, E.M. 2002. Pharmacokinetic modeling of arsenite uptake and metabolism in hepatocytes – mechanistic insights and implications for further experiments. *J. of Pharmacokinetics and Pharmacodynamics*, 29(3):207-34.
6. Kenyon, E.M., Fea, M., Styblo, M., and Evans, M.V. 2001. Application of modeling techniques to the planning of in vitro arsenic pharmacokinetic studies. *Alternatives to Laboratory Animals* (ATLA), 29:15-33.
7. Kenyon, E.M., and Hughes, M.F. 2001. A concise review of the toxicity and carcinogenicity of dimethylarsinic acid. *Toxicology* 160:227-236.
8. Kenyon, E.M., Hughes, M.F., Del Razo, L.M., and Levander, O.A. 2001. The impact of selenium status on metabolism and disposition of arsenic and its implications for epidemiologic investigations. In: *Arsenic Exposure and Health Effects IV*, pp. 315-323. W.R. Chappell, C.O. Abernathy and R.L. Calderon (eds), Elsevier Science Ltd, Amsterdam.
9. Kenyon, E.M. 2001. Chapter 6. Pharmacokinetics and Metabolism. In: *Environmental Health Criteria No. 224 Arsenic* (2nd ed.). International Programme on Chemical Safety, World Health Organization.
10. Easterling, M.R., Evans, M.V., and Kenyon, E.M. 2000. Comparative analysis of software for physiologically based pharmacokinetic modeling: simulation, optimization and sensitivity analysis. *Toxicology Methods* 10:203-229.
11. Hughes, M.F., Del Razo, L.M., and Kenyon, E.M. 2000. Dose-dependent effects on tissue and subcellular distribution of dimethylarsinic acid in the mouse after intravenous administration. *Toxicology* 143:155-156.
12. Woskie, S.R., Hammond, S.K., Hines, C.J., Hallock, M.F., Kenyon, E., and Schenker, M.B. 2000. Personal fluoride and solvent exposures, and their determinants, in semiconductor manufacturing. *Applied Occupational and Environmental Hygiene* 15:354-61.
13. Hughes, M.F., Kenyon, E.M., L.M., Edwards, BC, Mitchell, CT, and Thomas, D.J. 1999. Strain-dependent disposition of inorganic arsenic in the mouse. *Toxicology* 137:95-108.

14. Kenyon, E.M., Hughes, M.F., Del Razo, L.M., Edwards, BC, Mitchell, CT, and Levander, O.A. 1999. Influence of dietary selenium on the disposition of arsenate and arsenite in the female B6C3F1 mouse. *Environmental and Nutritional Interactions* 3:95-113.
15. Kitchin, K.T., Del Razo, L.M., Brown, J.L., Anderson, W.L., Kenyon, E.M., and Thomas, D.J. 1999. An integrated pharmacokinetic and pharmacodynamic model of arsenite action. 1. Heme oxygenase induction in rats. *Teratogenesis, Carcinogenesis and Mutagenesis* 19:385-402.

BIOGRAPHICAL SKETCH

NAME: **Prasada Rao S. Kodavanti** POSITION TITLE: **Toxicologist**

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Andhra University, Waltair, India	B.S.	1974	Zoology
Andhra University, Waltair, India	M.S.	1976	Zoology
Sri Venkateswara University, Tirupati, India	Ph.D.	1981	Pesticide Toxicol./Zoology
Dept of Neurology, Pharmacology & Toxicology, Univ of Mississippi Medical Center, Jackson, MS, USA	postdoctoral training	1983- 1985	Mammalian Toxicology

PROFESSIONAL EXPERIENCE:

Toxicologist, CMTB, Neurotoxicology Division, NHEERL, USEPA 1995 - present

Branch Chief (Temporary assignment), CMTB, Neurotoxicology Division, NHEERL, USEPA Nov 2003 - June 2004

Visiting Scientist, Neurotoxicology Division, HURL, U.S.E.P.A, Research Triangle Park, NC 1991-1994

Research Assistant Professor, Department of Neurology, Univ of Miss Med Center, Jackson, MS 1989-1991

Research Associate, Dept Pharmacology & Toxicology, Univ of Miss Med Center, Jackson, MS 1985-1989

SELECTED AWARDS AND HONORS (last 5 years):

Scientific and Technological Achievement Awards (Level III) by USEPA in 1996, 1999 and 2002.

Society of Toxicology's Board of Publications Award for the Best Paper in Toxicol. Appl. Pharmacology (1997).

Scientific Award in Neurotoxicology for the best paper in NTD of USEPA in 2000 and 2001.

INVITED LECTURES/SYMPOSIA (selected presentations from last 5 years):

Neurochemical effects of environmental chemicals: *in vitro* and *in vivo* correlations on second messenger pathways. Toxicology for the Next Millennium, Warrenton, VA (September 20-23, 1999).

Neurotoxicity of environmental chemical mixtures: Interactive effects of PCBs on neuronal second messenger systems. Dept of Biomedical Sciences, University of Rhode Island, Kingston, RI (March 24, 2000).

Differential effects of polybrominated diphenyl ethers and polychlorinated biphenyls on [³H]arachidonic acid release in rat neuronal cells". 21st International Symposium on Halogenated Environmental Organic Pollutants and POPs (Dioxin-2001), Kyongju, Korea (September 9-14, 2001).

Changes in hippocampal spine density and protein kinase C isoforms following developmental exposure to a mixture of persistent chemicals". 22nd International Symposium on Halogenated Environmental Organic Pollutants and POPs (Dioxin-2002), Barcelona, Spain (August 11-16, 2002).

Differential effects of polybrominated diphenyl ethers and polychlorinated biphenyls on intracellular signaling in rat neuronal cultures". 23rd International Symposium on Halogenated Environmental Organic Pollutants and POPs (Dioxin-2003), Boston, MA (August 24-29, 2003).

Human health risk on the neurotoxicity of persistent organic pollutants". 2003 International Symposium on the National Toxicology Program Strategy, Seoul, Korea (Nov 11, 2003).

Toxicological aspects of persistent chemicals". AMETEC/PEMSEA Training workshop, South Sea Institute of KORDI, Korea (Nov 16-18, 2003).
Are PBDEs the new PCBs". AMETEC/PEMSEA Training workshop, South Sea Institute of KORDI, Korea (Nov 16-18, 2003).
Polybrominated diphenyl ether (PBDE) effects in rat neuronal cultures: ¹⁴C-accumulation, biological effect, and structure-activity relationships. 24th International Symposium on Halogenated Environmental Organic Pollutants and POPs (Dioxin-2004), Berlin, Germany (September 5-10, 2004).

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY (selected professional activities):

Member, Editorial Board for the journal "Neurotoxicology"
Member, Editorial Board for the journal "Toxicological Sciences".
Member, Editorial Board for the journal "Pharmacology and Toxicology".
Chairperson, session entitled "Halogenated Hydrocarbons", SOT99 Annual Meeting in New Orleans, LA.
Chairperson, session entitled "Neurochemical and Behavioral Effects of PCBs and Dioxins", Dioxin '97, Indianapolis, IN.
Member, NIH study section (Special Emphasis Panel, 1999; 2000).
Chairperson, session entitled "Neurotoxic effects of persistent toxicants and environmental chemical mixtures", Dioxin2001 Annual meeting in Kyongju, Korea.
Chairperson, session entitled "Neurotoxicity of POPs", Dioxin2002 Annual meeting in Barcelona, Spain.
Chairperson, Session entitled "Neurotoxicity of POPs", Dioxin2003 Annual meeting, Boston, MA.
Chairperson, session entitled "Mechanisms and Implications of Research Design", 21st Intl Neurotox conf., Honolulu, Hawaii, February 2004).
Chairperson, session entitled "Neurotoxicity and Other Effects", Dioxin 2004 Annual meeting in Berlin, Germany.
Adjunct Professor of Toxicology, School of Pharmacy, Univ of Rhode Island, Kingston, RI (April 2000 to present).

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Reviewer of Internal EPA such as IRIS and other govt agency documents
Member of NHEERL DSG Steering Group (2004-present)
Member of NHEERL Strategic Planning Goal 5 writing team (2000)
Theme Leader for "PCBs-SAR", USEPA, RTP, NC (1995-1999).
Participated in Goal 8 program project planning and writing (3 projects) (2002)
Member of NTD awards committee (2002-2004)
Reviewed Draft documents for federal agencies like ATSDR
Gave research presentations to NHEERL senior management, program office, and at NHEERL Open House.

PUBLICATIONS (1999-2005):

Chauhan, K. R., Kodavanti, P. R. S. and McKinney, J. D.: Assessing the role of *ortho*-substitution on polychlorinated biphenyl binding (PCB) to transthyretin, a thyroxine transport protein. *Toxicol. Appl. Pharmacol.* **162**, 10-21, 2000.

Kodavanti, P. R. S. and Tilson, H. A.: Neurochemical effects of environmental chemicals: in vitro and in vivo correlations on second messenger pathways. *Ann. N. Y. Acad. Sci.* **919**, 97-105, 2000.

Sharma, R., Derr-Yellin, E. C., House, D. C. and Kodavanti, P. R. S.: Age-dependent effects of Aroclor 1254 on calcium uptake by subcellular organelles in selected brain regions of rats. *Toxicology* **156**, 13-25 (2000).

Geller, A. M., Oshiro, W., Haykal-Coates, N., Kodavanti, P. R. S. and Bushnell, P. J.: Gender-dependent behavioral and sensory effects of a commercial mixture of polychlorinated biphenyls (Aroclor 1254) in rats. *Toxicol. Sci.* **59**, 268-277 (2001)

Yang, J-H., and Kodavanti, P.R.S.: Possible molecular targets of halogenated aromatic hydrocarbons in neuronal cells. *Biochem. Biophys. Res. Comm.* **280**, 1372-1377 (2001).

Kodavanti, P. R. S., Kannan, N., Yamashita, N., Derr-Yellin, E.C., Ward, T. R., Burgin, D. E., Tilson, H. A., and Birnbaum, L. S.: Differential effects of two lots of Aroclor 1254: congener-specific analysis and neurochemical end points. *Environ. Health Perspect.* **109**, 1152-1161 (2001).

Burgin, D. E., Diliberto, J. J., Derr-Yellin, E. C., Kannan, N., Kodavanti, P. R. S., and Birnbaum, L. S.: Differential effects of two lots of Aroclor 1254: hepatic enzyme induction, thyroid hormones, and oxidative stress. *Environ. Health Perspect.* **109**, 1163-1168 (2001).

Herr, D. W., Graff, J. E., Derr-Yellin, E. C., Crofton, K. M., and Kodavanti, P. R. S.: Flash-, somatosensory-, and peripheral nerve-evoked potentials in rats perinatally exposed to Aroclor 1254. *Neurotoxicol. Teratol.* **23**, 591-601 (2001).

Sharma, R., and Kodavanti, P. R. S.: In vitro effects of polychlorinated biphenyls and hydroxy metabolites on nitric oxide synthases in rat brain. *Toxicol. Appl. Pharmacol.* **178 (3)**, 127-136 (2002).

Bushnell, P. J., Moser, V. C., MacPhail, R. C., Oshiro, W. M., Derr-Yellin, E. C., Phillips, P. M., and Kodavanti, P. R. S.: Neurobehavioral assessments of rats exposed perinatally to a commercial mixture of polychlorinated biphenyls. *Toxicol. Sci.* **68**, 109-120 (2002).

Kodavanti, P. R. S., and Derr-Yellin, E. C.: Differential effects of polybrominated diphenyl ethers and polychlorinated biphenyls on [³H]arachidonic acid release in rat cerebellar granule neurons. *Toxicol. Sci.* **68**, 451-457 (2002).

Kodavanti, P. R. S., Ward, T. R., Derr-Yellin, E. C., McKinney, J. D., and Tilson, H. A.: Increased [³H]phorbol ester binding in rat cerebellar granule cells and inhibition of ⁴⁵Ca²⁺ buffering in rat cerebellum by hydroxylated polychlorinated biphenyls. *Neurotoxicology* **24**, 187-198 (2003).

Yang, J-H., Derr-Yellin, E. C., and Kodavanti, P. R. S.: Alterations in brain protein kinase C isoforms following developmental exposure to a polychlorinated biphenyl mixture. *Mol. Brain Res.* **111**, 123-135 (2003).

Barone, S., Kodavanti, P. R. S., and Mundy, W. R.: Effects of toxicants on neural differentiation. In: *In Vitro Neurotoxicology: Principles and Challenges*, ed. E. Tiffany-Castiglioni, Humana Press, Totowa, NJ. pp187-215 (2003).

Kodavanti, P. R. S.: Intracellular Signaling and Developmental Neurotoxicity. In: *Molecular Neurotoxicology: Environmental Agents and Transcription-Transduction Coupling*, ed. N. H. Zawia, CRC Press, Boca Raton, FL. p 151-182 (2004).

BIOGRAPHICAL SKETCH

NAME: Urmila P. Kodavanti

POSITION TITLE: Research Biologist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Saurashtra University, Bhavnagar, India	B.S.	1977	Zoology, Botany, Chemistry
Maharaja Sayajirao Univ, Baroda, India	M.S.	1979	Zoology (Major: Fish and Avian)
Maharaja Sayajirao Univ, Baroda, India	Ph.D.	1983	Pesticide Toxicology (Aquatic)

PROFESSIONAL EXPERIENCE:

2002-Present	Research Biologist (GS-14), US EPA, NHEERL/ETD/PTB, RTP, NC
1998-2002	Research Biologist (GS-13), US EPA, NHEERL/ETD/PTB, RTP, NC
1995-1998	Research Biologist (GS-12), US EPA, NHEERL/ETD/PTB, RTP, NC
1992-1994	Research Fellow, CEMLB, University of North Carolina, Chapel Hill, NC
1985-1991	Research Associate, Dept Pharmacol Toxicol, Univ Miss Med Ctr, Jackson, MS
1984-1985	Post Doctoral Fellow, Dept Pharmacol Toxicol, Michigan State Univ, Lansing, MI
1983-1984	Lecturer, Department of Foods and Nutrition, MS University, Baroda, India
1982-1983	Teaching Assistant, Department of Zoology, MS University, Baroda, India
1979-1983	Junior Research Fellow, University Grants Commission, New Delhi, India

PROFESSIONAL SOCIETIES/BOARDS:

Society of Toxicology (2002-present)
American Thoracic Society (2001-present)
Genotoxicity & Environmental Mutagen Society, (2000 to present)
North Carolina Chapter of Society of Toxicology (1993-present)
Diplomat of American Board of Toxicology, 1989-present

AWARDS AND HONORS SINCE 1999 (Selected):

The Society of Toxicology "Best Paper Award", Baltimore MD, March 2004
EPA Honor Award, Gold Medal for PM Health Research Team, EPA, 2003
EPA Scientific and Technological Achievement Award, Level III, 2001(SAB) for a review paper on Rodent Models of Cardiopulmonary Disease, EHP.
EPA Scientific and Technological Achievement Award, Level III, 2001 (SAB) for a paper on "Pulmonary Responses to Oil Fly Ash Particles in the Rat, Toxicol Sci.
"The Paper of the Year" First author award, Society of Toxicology, Inhalation Speciality, 1999 for, "Pulmonary Responses to Oil Fly Ash Particles in the Rat, Toxicol Sci.
NHEERL ORD/EPA Strategic plan, "Futures Issues" team award, 2001.

INVITED LECTURES/SYMPOSIA SINCE 1999 (Selected):

Society of Toxicology, New Orleans, LA, March 1999. Workshop. "Models of cardiac and cardiopulmonary vascular disease".
Aspen Lung Conference, Aspen, CO, June 1999. "The combination of elastase and sulfur dioxide exposure causes COPD-like lesions in the rat".
XIth International Congress of Clinical Toxicology, Guaruja, Sao Paulo, Brasil, October 1999. s "Ambient particulate matter (PM) and human health".
Lovelace Respiratory Research Institute, International Symposium, Susceptibility factors for respiratory disease, Santa Fe, NM, Oct. 2000. "Rodent Models of diseases"
National Risk Management Research Laboratory, US EPA, Research Triangle Park, NC, June 2000. Seminar. "Lung Injury and Inflammation from Oil Combustion PM"
NTP/NIEHS, Research Triangle Park, NC 2001. Presentation. "Cardiovascular effects of Pulmonary Exposure to Particulate Matter"
University of Dusseldorf, Dusseldorf, Germany, September, 2001. Seminar.
"PM health effects in susceptible animal models"
RIVM, Belthoven, Netherlands, September, 2001. Seminar. "PM health effects in animal models with cardiovascular diseases".
2nd EPA/German National Research Center for Environment and Health Workshop, September, 2001, Elmau, Germany.
International symposium - Zinc-Signals, Aarhus, Denmark, June 19-22, 2004. Symposium talk, "The significance of zinc accumulation in cardiac injury by particulate matter air pollution".

American Heart Association, November 9-12, 2004. Symposium talk, "paradoxical role of zinc in cardiac injury: a potential link to environmental zinc exposure and cardiac morbidity".

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY (selected):

The American Institute of Biological Sciences (AIBS): Grants Review Panel, 2004.
Ph.D. Thesis Advisory Committee, YuMee Kim, 2004-2006: EHP, UNC, Chapel Hill, NC
Duke Visiting Pulmonary Scholar Program, Organizing Committee, representing EPA, 2004-2006
Session Chair, Respiratory Tract Toxicology, Society of Toxicology meetings, March 2004 Baltimore, MD
Counselor, Inhalation Speciality Section, Society of Toxicology, 2004-2006
4th EPA/German National Research Center for Environment and Health Workshop 2005, planning committee.
3rd EPA/German National Research Center for Environment and Health Workshop 2003, Planning Committee
2nd EPA/German National Research Center for Environment and Health Workshop, 2001: Chair, Animal Toxicology
2nd EPA/German National Research Center for Environment and Health Workshop, 2001: Moderator, Cardiovascular session
Thesis Advisory Committee, Bei Yu, 2000-2001: ITEH, University of California, CA
2nd EPA/German National Research Center for Environment and Health Workshop, 2001: Planning Committee
Invited Grant Review, University of Antwerp, Belgium, Joint Research Council on COPD, 2001
Invited Grant Review, Maastricht, Netherlands, Jan. 2003
Editorial Board, Toxicology and Applied Pharmacology, 2002-present
Editorial Board, Journal of Toxicology and Environmental Health, 2002-present
Editorial Board, Inhalation Toxicology, 2004-present

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY (selected):

NHEERL strategic plan, Goal5: Futures Planning Committee, NHEERL, EPA 1999
Emerging Issues Committee, NHEERL, EPA 1999-2000
German National Research Center for Environment and Health Collaboration-EPA Tox Liaison, 2000-present
Document Review: IRIS document on Phosgene, 2001
NHEERL Genomics, Proteomics Committee: Member, Division Representative, 2002-June 2004.
NHEERL Genomics, Proteomics Committee: Genomics Coordinator, 2003-June 2004.
Goal 8 Program Project on oxidative stress and susceptibility, Project Leader, 2002-2008

PUBLICATIONS (From January 1, 1999 to present, of a total of 71):

Kodavanti, U. P., and Costa, D. L. Animal Models to Study for Pollutant Effects. *Air Pollution and Health*. Eds. S.T. Holgate, J. M. Samet, H. L. Koren, R. L. Maynard. Academic Press, NY. 1999.

Kodavanti U. P., Jackson M. C., Ledbetter, A. D., Starcher, B., Evansky, P. A., Harewood, A., Winsett, D.W., and Costa, D.L. The combination of elastase and sulfur dioxide exposure causes COPD-like lesions in the rat. *Chest*: 117: 299S-302S, 2000.

Kodavanti, U. P., Mebane, R., Ledbetter, A., Krantz, T., McGee, J., Jackson, M., Walsh, L., Hilliard, H., Chen B-Y, Richard, J. R., and Costa, D. L. Variable pulmonary responses from exposure to concentrated ambient air particles in a rat model of bronchitis. *Toxicological Sciences* 54: 441-451, 2000.

Kodavanti, U. P., Schladweiler, M. C. J., Ledbetter, A., Watkinson, W. P., Campen, M. J., Winsett, D. W., Richards, J. R., Crissman, K., Hatch, G. E., and Costa, D. L. The spontaneously hypertensive rat as a model of human cardiovascular disease: Evidence of exacerbated cardiopulmonary injury and oxidative stress from inhaled emission particulate matter. *Toxicol. Appl. Pharmacol.* 164: 250-263, 2000.

Kodavanti, U. P., Schladweiler, M. C. J., Richards, J. R., and Costa, D. L. Acute lung injury from intratracheal exposure to fugitive residual oil fly ash and its constituent metals in normo- and spontaneously hypertensive rats. *Inh. Toxicol.* 13: 37-54, 2001.

Campen, M. J., Nolan, J.P., Schladweiler, M. C. J., Kodavanti, U. P., Evansky, P. A., Costa, D. L., and Watkinson, W. P. Cardiovascular and thermoregulatory effects of inhaled PM-associated transition metals: A potential interaction between nickel and vanadium. *Toxicol. Sci.* 64: 243-252, 2001.

Hatch G. E., Kodavanti, U, Costa, D., Dreher, K., Slade, R. An “injury- time integral ” model for extrapolating from acute to chronic effects of phosgene. *Toxicology and Industrial Health* 17: 285-293, 2001.

Kodavanti, U. P. Schladweiler, M. C. J., Ledbetter, A., Hauser, R., Christiani, D. C., McGee, J., Richards, J. R., and Costa, D.L. Temporal association between pulmonary and systemic effects of particulate matter in healthy and cardiovascular compromised rats. *JTEH* 65):101-125, 2002.

Nadadur, S. S. and Kodavanti, U. P. Altered rat lung gene expression profile in response to particulate matter (PM) and its constituent metal exposure. *J. Toxicol. Environ. Health* 65:1333-1350, 2002.

Moyer, C. F. Kodavanti, U. P., Haseman, J. K., Moronpot, R. R., Costa, D. L. and Nyska. A systemic vascular disease in male B6C3F1 mice exposed to particulate matter by inhalation: studies conducted by the National Toxicology Program. *Toxicologic Pathol.* 30:427-434, 2002.

Smith, K. R., Uyeminami, D. L., Chang, L.-Y, Kodavanti, U. P., Crapo, J. D., and Pinkerton, K. E. Mn(III) tetrakis - 2,5-diehyl imidazolium porphyrin (AEOL 10150) inhibits tobacco smoke-induced pulmonary inflammation in spontaneously hypertensive rats. *J. Free Radical Biol. Med.*33: , 2002.

Kodavanti, U. P. Schladweiler, M. C. J., Ledbetter, A.D., Hauser, R., Christiani, D. C., Samet, J.M., McGee, J., Richards, J. R., and Costa, D.L. Pulmonary and systemic effects of zinc-containing emission particles in three rat strains: multiple exposure scenarios. *Toxicol. Sci.* 70: 73-85, 2002.

Kodavanti, U. P. Moyer, C.F. Ledbetter, A.D., Schladweiler, M. C. J., Costa, D.L., Hauser, R., Christiani, D. C., A Nyska. Inhaled environmental combustion particles cause myocardial injury in the Wistar Kyoto rat. *Toxicol. Sci.* 71: 237-245, 2003.

Nadadur, S.S. and Kodavanti, U. P. Genomics application for cardiopulmonary toxicology. *Genetic and Proteomic Applications in Toxicity Testing*. Ed. Cunningham, M. J., Humana Press, Inc. NJ. In press, 2004.

Kodavanti, U.P., and Watkinson, W. P. Bio-availability of particle-associated air pollutants and relationship to cardiopulmonary injury. Chapter 3. In: *Air pollutants and Respiratory Tract*. Eds. Foster, W.M. and Costa, D.L., (Lung Biology in Health and Disease series, Ed. Claude Lenfant) Marcel Dekker, Inc. in press, 2004

Gilmour, P. S., Schladweiler, M. C., Ledbetter, A.D., Samet, J. M., and Kodavanti, U. P. The hypertensive rats are susceptible to TLR-4-mediated signaling following exposure to combustion particulate matter (PM). *Inhalation Toxicology*, 16 Suppl 1:5-18, 2004.

Hader, V., Gilmour, P.S., Lentner, B., Karg, E., Takanaka, S., Ziesenis, A., Stampfl, A., Kodavanti, U.P., Heyder, J., and Schulz, H. Cardiovascular responses in unrestrained WKY-rats to inhaled ultrafine carbon particles. *Inhalation Toxicology*, in press, 2004.

BIOGRAPHICAL SKETCH

NAME: Hillel S. Koren

POSITION TITLE: Senior Science Advisor/ADH

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Tel Aviv University, Tel Aviv, Israel	M.Sc.	1968	Immunol&MicrobiolIm munology
Univ. of Freiburg, and Max Planck Institute of Immunology, Germany	Ph.D.	1971	
University of Calif, Berkeley (EMBO Fellow)	Post doc	1971-1973	Tumor Immunology
NIH/NCI (Fogarty Fellow)	Post doc	1973-1975	Tumor Immunology

PROFESSIONAL EXPERIENCE

Coordinator, ORD's Asthma Research Program 2003–Present
IPA assignment, Carolina Environmental Program, Chapel Hill, NC 2001-Present
Research Professor, Carolina Environmental Program, UNC, Chapel Hill, NC 2001-Present
Lead, ORD Asthma Research Strategy Team 1999-Present
Director, Human Studies Division, NHERL, EPA, Chapel Hill, NC 1992-2001
Chief, Cell and Molecular Biology Section, HERL, EPA, Chapel Hill, NC 1984-1991
Associate Professor of Immunology, Duke Medical Center, Durham, NC 1981-1984
Assistant Professor, Duke Medical Center, Durham, NC 1975-1981

SELECTED AWARDS AND HONORS

1971-1973 European Molecular Biology Organization (EMBO) Fellow
1973-1975 NIH Fogarty Fellow
1979-1984 Research Career Development Award (NIH/NCI)
1979-1991 Recipient of multiple R01 NIH/NCI Grants
1980-1984 Experimental Immunology Study Section, National Institutes of Health
1991 U.S. EPA, Scientific and Technological Achievement Award - Level I
1992 U.S. EPA, Scientific and Technological Achievement Award - Level III
1996-2000 Member, Technical Qualifications Board, NHEERL, RTP, NC
1999 Recipient, EPA Bronze Medal for excellence in initiating and implementing an international collaborative Arrangement between EPA and the Research Center for Environment and Health (GSF) of the Federal Republic of Germany
2002 Honorary member, Society for Allergology and Clinical Immunology (DGAI)

INVITED LECTURES/SYMPOSIA (Selected 9 presentations from a total of 22 in the last 5 years)

1. EPA Delegation to the International Workshop on “Advances in Air Quality Management: Particulate Matter Regulation Case Study”, Beijing, China, March 26-28.(2000)
2. Speaker, Mid Atlantic Society of Toxicology Symposium on “Interfacing Toxicology and Epidemiology through Biomarker Development”, Iselin, NJ, October 12. (2001)
3. Speaker, “13th International Congress for aerosols and Medicine (ISAM)”, Interlaken, Switzerland, September 17-21.(2001)
4. Speaker, “Environmental Air Toxics: Role in Asthma Occurrence”, Mickey Leland National Research Center, Houston, TX (2001)
5. Speaker, Colloquium on “Unhealthy Landscapes: How Land Use Change Affects Health”, International Society for Ecosystem Health, Washington DC, June 6-11.(2001)
6. Co-Chair, UNC/CEP Symposium on “Environmental Change and Human Health”, Friday Center, April 14-15 (2003)
7. Keynote speaker, “Molecular Research in Environmental Medicine”, Dusseldorf, March 18-20 (2004)

9. ORD Science Forum, Washington DC June 3 (2004)

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY

Associate Editor, Cellular Immunology (1983-1996)

Associate Editor, Inhalation Toxicology (1987-1994)

International Advisory Committee for the International Inhalation Symposia Series of the Hanover Medical School, and Fraunhofer Institute, Germany (1997-Present)

Member, Long Range Planning Committee, ATS/Environmental and Occupational Health Assembly (1999-Present)

Member, Team to create a National Research Agenda for Occupational Asthma (NORA) and chronic lung disease for NIOSH (1997-present)

Research Professor, Carolina Environmental Program, UNC, Chapel Hill, NC (2001-Present)

Coordinator, ORD's Asthma Research Program (2003–Present)

IPA assignment at Carolina Environmental Program, Chapel Hill, NC (2001-Present)

Editorial Board, International Journal of Hygiene and Environmental Health (2000-Present)

Co-chair, CEP/UNC Symposium on Environmental Change and Human Health, Friday Center, April 14-15 (2003)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY

Director, Human Studies Division, Health Effects Research Laboratory, U.S. EPA, Chapel Hill NC (1992-2001)

ORD's representative to the Scientific Advisory Panel to Mickey Leland's National Urban Air Toxics Research Center (1992-1995)

Member, Technical Qualifications Board, NHEERL, RTP, NC (1996-2000)

Chairman, Workshop Organizing Committee, "Asthma and the Environment", Chapel Hill, NC (1996)

NHERL's representative to the President's Task Force on Environmental Health Risks and Safety Risks to Children Workgroup on Asthma (1998-1999)

Lead, ORD Asthma Research Strategy Team (1999)

Recipient, EPA Bronze Medal for excellence in initiating and implementing an international collaborative Arrangement between EPA and the Research Center for Environment and Health (GSF) of the Federal Republic of Germany (1999); Program manager 1999-present

Member, Planning Committee Workshop on "Environmental Influences on the Induction and Incidence of Asthma", RTP, NC (2004)

Member, Federal Liason Group on Asthma (2004-present)

PUBLICATIONS (18 selected from 5 last years from an overall total of 204 papers and 4 books)

***Koren, H.S.**, and M. O'Neill. Experimental assessment of the influence of atmospheric pollutants on respiratory disease. **Toxicology Letters** 102-103:317-321, 1998.

*Holgate, S.T., J.M. Samet, **H.S. Koren**, and R.L. Maynard, eds. "Air Pollution and Health", Academic Press, 1999.

*Van Loveren, H.D., D. Gorelic, **H.S. Koren**, M.I. Luster, C. Nolan, R. Repetto, E. Smith, J. Vos, and R.F. Vogt. Advancement of epidemiological studies in assessing the human health effects of immunotoxic agents in the environment and the workplace. **Biomarkers** 4(2): 135-157, 1999.

*Becker, S., W.A. Clapp, J. Quay, K.L. Frees, **H.S. Koren**, and D.A. Schwartz. Compartmentalization of the inflammatory response to inhaled grain dust. **Am. J. Resp. Crit. Care Med.** 160:1309-1999.

*Devlin, R.B., S.E. Becker, M.C. Madden, D.H. Horstman, **H.S. Koren**, G.E. Hatch, and F.

Biscardi. Inflammatory Response in Humans Exposed to 2.0 ppm Nitrogen Dioxide. **Inhalation Toxicology** 11:89-109, 1999.

*Lay, J.C., W.D. Bennett, A.J. Ghio, P.A. Bromberg, D.L. Costa, C.S. Kim, **H.S. Koren**, and R.B. Devlin. Cellular and Biochemical Response of the Human Lung Following Intrapulmonary Instillation of Ferric Oxide Particles. **Am. J. Respir. Cell Mol. Biol.** 20: 631-642, 1999.

***Koren, H.S.**, M. O'Neill, and D. Peden. Environment and Risk Factors in Allergic Disease and Asthma. In: CRC Desk Reference for Allergy and Asthma, 1999.

- *Gavett, SH., and **H.S. Koren**. The role of particulate matter in exacerbation of atopic asthma. **Int. Arch. Allergy Immunol.**, 124: 109-112, 2001.
- *Monn, C., and **H.S. Koren**. Bioaerosols in Ambient Air Particulates: A Review and Research Needs. **Reviews on Environmental Health** 14(2): 69-89, 1999.
- *Gilmour, M.I., and **H.S. Koren**. Interaction of Inhaled particles with the Immune System. In: "Particle-Lung Interactions", P. Gehr and J. Heyder, eds., pp. 629-652, 1999.
- *Selgrade, M.J., M.V. Smith, L.J. Oberhelman-Bragg, G.L. LeVee, **H.S. Koren**, and K.D. Cooper. Dose response for UV-induced immune suppression in people of color: Differences based on erythral reactivity rather than skin pigmentation. **Photochem. Photobiol.**, 74:88-95, 2001.
- *Calderón-Garcidueñas, L., A. Mora-Tiscareño, L.a. Foreham, C.H. Chung, R. Garcia, N. Osnaya J. Hernandez, H. Acuña, T.M. Gamblin, A. Villarreal-Calderón, J. Carson, **H.S. Koren**, R.B. Devlin,. Canines as sentinel species for assessing chronic exposures to air pollutants. Part I. Respiratory Pathology. **Toxicol. Sci.**, 61:342-355, 2001
- *Van Bree, L., J.A.M.A. Dormans, **H.S. Koren**, R.B. Devlin, and P.J.A. Rombout. Attenuation and recovery of pulmonary injury in rats following short-term, repeated daily exposure to ozone. **Inhalation Toxicology** 14: 101-118, 2002
- ***Koren, H.S.** and D. Crawford-Brown. A framework for the integration of ecosystem and human health in public policy. **Envtl. Res.** 95:92-105, 2004.
- *Riediker, M., and **H.S. Koren**. The importance of environmental exposures to physical, mental and social well-being. **Int. J. Hyg. Envtl. Health**, 207: 193-201, 2004
- ***Koren, H.S.**, and C. Butler. The interconnection between the built environment ecology and health. In: "The role of risk assessment in environmental security and emergency preparedness in the Mediterranean region", I. Linkov ed. NATO Proceedings, in press.
- *Butler, C.D., C. Corvalan, and **H.S. Koren**. Human health and well-being in global ecological scenarios. **Ecosystems**, in press. (available on line).

BIOGRAPHICAL SKETCH

NAME: Susan Laessig

POSITION TITLE: Toxicologist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Miami, Coral Gables, FL	B.S.	1992	Marine Science and Biology
University of Maryland, Baltimore, MD	M.S.	1996	Toxicology
University of Maryland, Baltimore, MD	Ph.D.	2000	Toxicology

PROFESSIONAL EXPERIENCE:

June 2004- present: Toxicologist, U.S. Environmental Protection Agency, Washington, DC

January 2003-May 2004: Associate, Sciences International, Inc., Alexandria, VA

April 2001-December 2002: Postdoctoral Fellow, National Center for Toxicological Research, Oak Ridge Institute for Science and Education (ORISE)

Sep.-Dec. 2000: Visiting Scientist, Free University, Berlin, Germany

June-August 2000: Intern, National Academy of Sciences Internship Program

PROFESSIONAL SOCIETIES & PUBLICATION BOARDS:

Society of Toxicology, National Capital Area Chapter

American Association of University Women

Phi Kappa Phi Honor Society

SELECTED AWARDS AND HONORS:

2001 Postdoctoral Fellowship- Oak Ridge Institute for Science and Education

1999-2000 Dissertation Fellowship- American Association of University Women

1999 Student Poster Award- National Capital Area Chapter, Society of Toxicology

1999 Keystone Symposium Student Travel Fellowship (presentation)

INVITED LECTURES/SYMPOSIA:

Jun. 2002 "Pesticides, hormones, and the brain", EPA, Washington, DC

Dec. 2000 "Neurotoxicity of endocrine disruptors", University of Düsseldorf, Germany

Sep. 2000 "Neurotoxicity of endocrine disruptors", EPA, Research Triangle Park, NC

Sep. 2000 "Neurotoxicity of endocrine disruptors", University of North Carolina, Chapel Hill, NC

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Computational Toxicology Implementation Steering Committee

Biotechnology Research Program Committee

Endocrine Disruptors Research Program Committee

PUBLICATIONS:

Original articles

Laessig, S.A., Tabacova, S.A., and C.A. Kimmel. (2003). A review of reproductive and developmental effects of pesticide exposure in humans. *Journal of Children's Health*. 1(4):405-447.

Laessig, S.A., McCarthy, M.M., and Silbergeld, E.K. (1999). Neurotoxicity of endocrine disruptors. *Current Opinion in Neurology*. **12**:745-751.

Reports

National Research Council, Ocean Studies Board. “*Recruiting fishery scientists: workshop on stock assessment and social science careers*”, National Academy Press, 2001.

BIOGRAPHICAL SKETCH

NAME: Susan C. Laws

POSITION TITLE: Research Biologist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Meredith College, Raleigh, NC	B.S.	1975	Biology
N.C. State University, Raleigh, NC	M.S.	1982	Physiology
N.C. State University, Raleigh, NC	Ph.D.	1988	Biochemistry

PROFESSIONAL EXPERIENCE :

Research Biologist, Endocrinology Branch, RTD, NHEERL, ORD, EPA	1995 - Present
Research Biologist, Endocrinology/Gerontology Section, RTD, NHEERL,	1984 -1995
Research Biologist, Reproductive Toxicology Branch, DTD, NHEERL	1995 - 1975

SELECTED AWARDS AND HONORS:

- Phi Lambda Upsilon - Chemistry Honor Society
- Recipient, The Anne A. Work Memorial Award, 1989, Outstanding Graduate Student-Biochemistry Department
- Recipient, Special Achievement Award- (1991) DTD Seminar Series
- Recipient, Scientific and Technological Achievement Award (Level 1) - 1996
- Recipient, S Award (US EPA)- Contributions to EDSP (Female Pubertal Development), 1999
- Recipient, Exceptional ORD Technical Assistance to the Regions or Program Office Award, 2000,
- Recipient, S Awards (US EPA) - Contributions to EDSP (Protocol Development); Contributions to Special Review of Atrazine, 2000
- Recipient, ORD Award for Outstanding Technical Assistance to OPPTS during the standardization and validation of Tier 1 Screening Batter of EDCs. 2000
- Recipient, OSCP Award - Outstanding Contributions to the Implementation of EDSP, 2001
- Recipient, S Awards (OSCP, and RTD) - Contributions to EDSP (ER Validation), 2002
- Recipient, S Award (RTD) - Contributions to EDSP, 2003
- Recipient, Scientific and Technological Achievement Award (Level 3) - 2003
- Recipient, Office of Pesticides Program, Health Effects Division Team Award (2003).
- Recipient, Bronze Medal for Promoting Strong Science in Agency Decisions. (2004)

INVITED LECTURES/SYMPOSIA (Selected presentations in the last 5 years):

1. Biological Actions of Estrogen: Genomic and Non-Genomic Mechanisms. March 1999. Workshop. Endocrine Disruption and Neurotoxicity: Why Toxicologists Should be Concerned About the Actions of Estrogenic Chemicals in the CNS. 38th Annual Meeting of the Society of Toxicology. New Orleans, LA.
2. Effects of Atrazine on Female Reproductive Development. November 2000. Toxicology Department. NC State University, Raleigh, NC.
3. Environmental Estrogens: Methods for Detection. May 2001. Endocrine Disruptors Workshop. Region IV. Atlanta, GA.
5. Aromatase Review Document. March 2002. National Advisory Council for Environmental Policy and Technology (NACEPT), Endocrine Disruptor Methods Validation Subcommittee (EDMVS), Third Plenary Meeting, Washington, DC.

6. Status of the U.S. EPA's Endocrine Disruptors Screening Program. April 2002. Carolinas SETAC, Raleigh, NC.
7. Identifying Environmental Chemicals With Endocrine Disrupting Activity. April 2002, Department of Pharmacology, Campbell College, Buies Creek, NC.
8. Validation of an In Vivo Assay for the Evaluation of Environmental Chemicals on Pubertal Development and Thyroid Function in Female Rats. October 2002. Endocrine Disruptors Program Review Workshop. ORD's National Center for Environmental Research, RTP, NC.
9. Environmental Estrogens: Role of the US EPA in Detection. November 2002, Department of Pharmacology, Campbell College, Buies Creek, NC.
10. In Vitro Aromatase Assay: Prevalidation Studies. December 2003. National Advisory Council for Environmental Policy and Technology (NACEPT), Endocrine Disruptor Methods Validation Subcommittee (EDMVS), Ninth Plenary Meeting, Washington, DC.
11. Development and Validation: In Vitro Protocols That Identify Endocrine Disrupting Chemicals. October 2003. Endocrine Disruptor Research Program Review Workshop, RTP, NC.
12. In Vitro Assays Undergoing Validation in the U.S. EPA's Endocrine Disruptor Screening Program. Workshop. Development of Testing Strategy for Evaluating Chemicals That Alter Fertility, ECCVAM, Ispra, Italy. June, 2004.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Member, Triangle Consortium for Reproductive Biology (1991- present)
 Reviewer, NIEHS contract with RTI, 2000
 Editorial Board, Journal of Toxicology and Environmental Health, 1998-2002
 Editorial Board, Birth Defects Research: Developmental and Reproductive Toxicology, 2003 - present
 Ad hoc reviewer: Endocrinology, Reproductive Toxicology, Toxicological Sciences,
 1995 -Present
 Member, EDTA Validation Management Group for non-animal test, OECD

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Co-coordinator of DTD Seminar Series- 1989-1993
 Member, Workgroup on Communications, HERL, EPA, 1991-1992
 Member, RTD Performance Recognition Committee, NHEERL, 1998 - Dec. 2000
 Member, NHEERL-RTP Quality Assurance Committee, 1998 - October 2000
 Member, NHEERL SP2K (Goal 3) Committee, 2000
 Member, Review Team, QA Contract for Instrumentation Validation, 2001
 Member, RTD Endocrine Disrupting Screening Program Committee, 2000-present
 Technical Advisor for OPPTS, U.S. EPA contract studies to validate the (1) In Vitro ER Binding Assays for QSAR, (2) Female Pubertal Development and Thyroid Function Assay, and (3) In Utero/Lactation Assay, 2000-present
 Technical Monitor, Pubertal Developmental Studies conducted by TherImmune Research Corp., 2000 - 2001
 Technical Advisor, U.S. EPA, Endocrine Disruptors Methods Validation Subcommittee, 2000 - present

PUBLICATIONS (8 selected from 12 over the last five years):

Goldman, J.M., Laws, S.C., Balchak, S.K., Cooper, R.L. and Kavlock, R.J. Endocrine disrupting chemicals: Prepubertal exposures and effects on sexual maturation and thyroid activity in the female rat. A review of the EDSTAC recommendations. **Critical Reviews in Toxicology**. 30: 135-196, 2000.

Laws SC, Carey SA, Ferrell JM, Bodman GJ, Cooper RL. Estrogenic activity of octylphenol, nonylphenol, bisphenol A and methoxychlor in rats. **Toxicol. Sci.** 54(1): 154-1667, 2000.

Laws, S.C., Ferrell, J.M., Stoker, T.E., Schmid, J., and Cooper, R.L. The effect of atrazine on puberty in female wistar rats: an evaluation in the protocol for the assessment of pubertal development and thyroid function. **Toxicological Sciences**. 58(2): 366-376, 2000.

Stoker, T.E., Laws, S.C., Guidici, D., and Cooper, R.L. The effects of atrazine on puberty and thyroid function in the male wistar rat: An evaluation of a protocol for the assessment of pubertal development and thyroid function. **Toxicological Sciences**. 58: 50-59, 2000.

Stoker, T.E., Guidici, D.L., Laws, S.C. and Cooper, R.L. The effects of atrazine metabolites on Puberty and Thyroid Function in the Male Wistar Rat: An Evaluation in the Male Pubertal Protocol. **Toxicological Sciences**. 67: 198-206, 2002.

Laws, S.C., Ferrell, J.M., Stoker, T.E. and Cooper, R.L. Pubertal development in female Wistar rats following exposure to propazine and atrazine biotransformation by-products, diamino-s-chlorotriazine and hydroxyatrazine. **Toxicological Sciences** 76: 190-200 (2003).

Stoker, T.E., Laws, S.C., Crofton, K.M., Hedge, J.M., Ferrell, J.M., and Cooper, R.L. Assessment of DE-71, a common commercial polybrominated diphenyl ether (PBDE) mixture, in the EDSP male and female pubertal protocols. **Toxicological Sciences** 78:144-155, 2004.

BIOGRAPHICAL SKETCH

NAME: Danelle T. Lobdell .

POSITION TITLE: Environmental Health Scientist

EDUCATION/TRAINING

Institution and Location	Degree	Year	Field of Study
Canisius College; Buffalo, NY	BA	1992	Biology
University at Buffalo, State University of New York; Buffalo, NY	MS	1995	Natural Sciences
University at Buffalo, State University of New York; Buffalo, NY	PhD	2001	Epidemiology and Community Medicine

PROFESSIONAL EXPERIENCE:

June 2004 to present: Environmental Health Scientist (Epidemiology) - Competitive Service, US EPA. NHEERL, Research Triangle Park, NC

September, 2001 to June 2004: Environmental Health Scientist (Epidemiology) – R-Authority Post Doctoral Fellowship, US EPA. NHEERL, Research Triangle Park, NC

1997-2001: Teaching Assistant, Department of Social and Preventive Medicine, School of Medicine and Biomedical Graduate Sciences, University at Buffalo, State University of New York

1998; 2000: Small Group Facilitator, Small Group Facilitator, Department of Social and Preventive Medicine, School of Medicine and Biomedical Sciences, University at Buffalo, State University of New York

Summer 1999 – Spring 2000: Research Assistant, Department of Social and Preventive Medicine, School of Medicine and Biomedical Graduate Sciences, University at Buffalo, State University of New York

Summer 1998: Research Assistant, US EPA. NHEERL, Research Triangle Park, NC

1995-1996: NIH Pre-doctoral Fellowship, Roswell Park Graduate Division, Roswell Park Cancer Institute and University at Buffalo, State University of New York

SELECTED AWARDS AND HONORS:

June 2002: Student Prize Paper Recipient, Society for Pediatric and Perinatal Epidemiologic Research

May 2002: Dean’s Award for best dissertation in the School of Medicine and Biomedical Sciences, University at Buffalo, State University of New York

May 2002: Saxon Graham Award, Department of Social and Preventive Medicine, School of Medicine and Biomedical Sciences, University at Buffalo, State University of New York

June 2000: Participant -Association for Practical and Professional Ethics Graduate Research Ethics Education Workshop

June 2000: Participant in The Society for Epidemiologic Research Student Workshop on Epidemiologic Methods

INVITED LECTURES/SYMPOSIA (Selected):

“Epidemiology and Biostatistics”, NHEERL Training Organization, Research Triangle Park, NC; May 2004

“Identifying Issues for Recruitment, Retention, and Community Involvement – Update”, National Children’s Study Pilot Study Review Workshop; Research Triangle Park, NC; November 2003

“Drinking Water Arsenic and Pregnancy Outcomes”; U.S. EPA National Center for Environmental Assessment Seminar, Washington, DC; October 2003

“Ethics”, EPID 277, Environmental Epidemiology, University of North Carolina at Chapel Hill, October 2002

“Use of a Commercial Telephone Directory for Obtaining a Population-Based Sample of Women of Reproductive Age”, SPM 590, Department of Social and Preventive Medicine Weekly Seminar,

University at Buffalo, State University of New York; October 2002

“Reproductive Health Effects as Environmental Sentinels”, EPID 277, Environmental Epidemiology, University of North Carolina at Chapel Hill; November 2001

“Development of a Community Advisory Board”, US EPA National Children’s Study Meeting of Project Leaders – Methods Development Projects, November 2001

“Pilot Testing Methods of Recruitment and Retention for the National Children’s Study”, US EPA National Children’s Study Meeting of Project Leaders – Methods Development Projects, November 2001

“The National Children’s Study of Environmental Effects on Child Health and Development”, US EPA Human Studies Division Briefing for the US EPA Office of Science Policy, November 2001

“Ethics in Epidemiology”, SPM 502, Advanced Methods in Epidemiology, University at Buffalo, State University of New York; April 2001

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

August 2004: Review of the Health Chapter for GEOSS

December 2003: Co-Facilitator Ethics Breakout Group, National Children’s Study Assembly Meeting, Atlanta, GA

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

September 2004- October 2004: Subcommittee for CAAAC on air accountability

August 2004 to present: Cumulative Risk Research Planning Group

April 2004 to present: Human health committee for EPA Report on the Environment 2006

March 2004: Review of drinking water arsenic literature for Office of Water

November 2003 to June 2004: Committee member for the NHEERL Training Organization (NTO)

March 2003 to present: Participated in CDC and EPA MOU committee meetings discussing monitoring, exposure and surveillance databases

February 2003: Participated in NHEERL Drinking Water Implementation Planning Scientist-to-Scientist Meeting – Arsenic subcommittee

January 2003 to June 2003: Participated on committee to review Biomarkers RFA for NCER

July 2002 to December 2003: HSD Human Subject Policies and Procedures Review Committee

December 2001 to December 2003: NHEERL Ethics Committee. Reviewing “Guidelines for the Ethical Conduct of Human Research at National Health and Environmental Effects Research Laboratory”, “Module 2: Guidelines on the Ethical Conduct of Epidemiologic Studies in National Health and Environmental Effects Research Laboratory”

November 2001 to present: NHEERL Goal 8.2 Program – committee member. Environmental Factors Associated with Children’s Health and Development, National Children’s Study (NCS): Biologic Indicators of Susceptibility and Sensitivity among Children to Assess Potential Risk of Adverse Health Outcomes Associated with Environmental Exposures

PUBLICATIONS:

Lobdell DT, Mendola P. “Development of a Biomarkers Database for the National Children’s Study”, Toxicology and Applied Pharmacology (in press)

Buck GM, Weiner JM, Whitcomb BW, Sperrazza R, Schisterman EF, **Lobdell DT**, Crickard K, Greizerstein H, Kostyniak PJ. “Environmental PCB Exposure and Risk of Endometriosis”, Human Reproduction (in press)

Lobdell DT, Gilboa S, Mendola P, Hesse BW. “Use of Focus Groups for the Environmental Health Researcher”, Journal of Environmental Health (in press)

Lobdell DT, Buck GM, Weiner JM, Mendola P, "Using commercial telephone directories to obtain a population-based sample for mail survey of women of reproductive age", Paediatric Perinatal Epidemiology 17:294-301, 2003

Lobdell DT. Case Study with Commentary from Muskavitch. In Schrag, editor. Research Ethics: Cases and Commentaries. Bloomington: 2001; Volume 5.

Royster MO, **Lobdell DT**, Mendola P, Perreault SD, Selevan SG, Rothmann SA, Robbins WA, "Evaluation of a Container for Collection and Shipment of Semen with Potential Uses in Population-Based, Clinical, and Occupational Settings", Journal of Andrology 21:478-484, 2000

Cancel AM, **Lobdell DT**, Mendola P, Perreault SD, "Objective Evaluation of Hyperactivated Motility in Rat Spermatozoa Using Computer-Assisted Sperm Analysis", Human Reproduction 15:1322-1328, 2000

BIOGRAPHICAL SKETCH

NAME: Matthew N. Lorber

POSITION TITLE: Senior Scientist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Cornell University, Ithaca, NY	B.S.	1977	Agricultural Engineering
Cornell University, Ithaca, NY	M.S.	1979	Agricultural Engineering

PROFESSIONAL EXPERIENCE:

Senior Scientist, NCEA, ORD, US EPA 1990 - present
Staff Scientist, OPP, OPPTS, US EPA 1984-1990
Faculty, University of Florida, Agricultural Engineering Dept 1981-1983
Staff Scientist, ORD, US EPA Athens Georgia Laboratory 1979 - 1981

SELECTED AWARDS AND HONORS:

Recipient, Bronze Medal for Exceptional Service for development of the Methodology for Assessing Health Risks Associated with Multiple Pathways of Exposure to Combustor Emissions, 1999.
Recipient, ORD Special Recognition Award, Exceptional/Outstanding ORD Technical Assistance to the Regions or Program Offices, 2000
Recipient, Bronze Medal for Exceptional Service for significant achievements in working with program offices to promote the use of strong science in Agency decisions, 2004

INVITED LECTURES/SYMPOSIA (Selected presentations from a total of 31 in the last 6 years):

A Risk Assessment Tool for the Metal Finishing Industry. The Annual AESF/EPA Conference for Environmental Excellence, January 25-27, Lake Buena Vista, Fla (1999).
A Pharmacokinetic Model for Estimating Exposure of Americans to Dioxin-Like Compounds in the Past, Present, and Future. 40th Annual Meeting of the Society of Toxicology, March 25-29, San Francisco, CA (2001).
An Evaluation of Infant Exposures to Dioxin-Like Compounds in Mother's Milk. ISEA 2001, Nov 4-8, Charleston, SC (2001).
Simple Approaches for Modeling the Bioaccumulation of Dioxin-Like Compounds in Terrestrial and Aquatic Animals. Vietnam-United States Scientific Conference on Human Health and Environmental Effects of Agent Orange/Dioxin, March 3-6, Hanoi, Vietnam (2002)
Soil and air impacts of dioxins emissions from the Shinkampo Incinerator to the United States Naval Air Facility at Atsugi, Japan. Dioxin 2002. Aug 11-15, Barcelona, Spain (2002).
Assessing Inhalation Risk from Ground Zero Emissions. First World Congress on Risk, sponsored by the Society for Risk Analysis, June 22-25 in Brussels, Belgium (2003).
A study to evaluate the levels of dioxin-like compounds in dairy feeds in the United States Dioxin 2004, Sep 6-10, Berlin, Germany (2004).

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Co-Chair, Food and Feed Session, Dioxin 2004, Sep 6-10, Berlin, Germany (2004), and co-chair for various sessions in this conference for 3 other years.
Invited Consultancy to FEPAM, a state Environmental Agency of Porto Alegre, Brazil, including evaluating data from an industrial site, and a 2-day continuing education training for staffers of FEPAM (2003)
Exposure Assessment Methods at EPA. 4-hour training conducted alone at Conference on Topics in Toxicology and Risk Assessment, an annual conference held near Cincinnati, OH. Conducted the training 3 years from 1998 to 2000.
Part of 3-person team presenting 2 week-long courses in exposure and health risk in Indonesia in 1997; training was sponsored by EPA's Office of International Activities
Regular reviewer for manuscripts on dioxin exposure to journals including Env. Sci & Tech, Sci Total Environ., J. Agr, Food Chem, and several other journals

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Invited member of ORD's "Red Team", a group of scientists who have committed to be prepared assist the Agency in the event of a terrorist attack or similar disaster

Provide EPA Regional Support for site-specific incinerator assessments in Region 5, World Trade Center in Region 2; such support recognized by several awards

Provide program support on regulatory activities associated with dioxin - land application of sewage sludge, dioxins in pentachlorophenol used as a wood preservative, and others

PUBLICATIONS (13 selected from a total of primary and secondary authorships in 35 published in last 6 years):

- Lorber, M., P. Shapiro, D. Bottimore, S. Schwartz, C. Peck, D. Meng. 1999. A risk assessment tool for the metal finishing industry. p. 32-39 in, Proceedings: The AESF/EPA Conference for Environmental Excellence. Held January 25-27, 1999, at Lake Buena Vista, Fla. Published by the American Electroplaters and Surface Finishers Society, 12644 Research Parkway, Orlando, FL 32826-3298.
- Lorber, M., A. Eschenroeder, R. Robinson. 2000. Testing EPA's ISCST-Version 3 Model on Dioxins: A comparison of predicted and observed air and soil concentrations. Atmospheric Environment 34:3995-4010
- Lorber, M., P. Pinsky. 2000. An evaluation of three empirical air-to-leaf models for dioxins. Chemosphere, Volume 41:931-941.
- Lorber, M., D. Canter, D. Layland. 2000 Evaluating terrestrial food chain impacts near sources of dioxin release in EPA risk assessments. Organohalogen Compounds, Volume 48:264-268.
- Lorber, M. 2001. Indirect Exposure Assessment at the United States Environmental Protection Agency. Toxicology and Industrial Health, Vol 17: 145-156
- US EPA. Exposure and Human Health Evaluation of Airborne Pollution from the World Trade Center Disaster (External Review Draft). National Center for Environmental Assessment, Office of Research and Development, U.S. Environmental Protection Agency, Washington, D.C., 2002. December, 2002. EPA/600/P-2/002a. Lorber and Gibb, Principal Authors.
- Lorber, M. 2002 A pharmacokinetic model for estimating exposure of Americans to dioxin-like compounds in the past, present, and future. Science of the Total Environment 288:81-95.
- Lorber, M., R. Barton, D. Winters, K. Bauer, M. Davis, and J. Palausky. 2002. Investigation of the potential release of polychlorinated dioxins and furans from PCP-treated utility poles. Science of the Total Environment 290:15-39
- Lorber, M, and L. Phillips. 2003. Infant exposure to dioxin-like compounds in breast milk. Environmental Health Perspectives 110(6):A325-A332.
- Lorber, M., J. Ferrario, C. Byrne, C. Greene, A. Cyrus. 2004. A study to evaluate the levels of dioxin-like compounds in dairy feeds in the United States. Organohalogen Compounds 66: 1958-1965.

BIOGRAPHICAL SKETCH

NAME: Susan L. Makris

POSITION TITLE: Toxicologist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Wisconsin, Milwaukee, WI; Madison, WI	B.S.	1967-1971	Genetics
American University, Washington, DC.	M.S.	1988-1991	Environmental Toxicology

PROFESSIONAL EXPERIENCE:

Detail, toxicologist, ORD/NCEA-W, EICG	2004-present
Acting Chief, OPPTS/OPP/HED, Toxicology Branch	2003 - 2004
Toxicologist, OPPTS/OPP/HED, Toxicology Branch	1991 - 2004
Manager, Department of Toxicology, Scientific Research, Hazleton Laboratories America, Vienna, VA	1984 - 1991
Group Leader, Reproduction and Teratology Laboratory, Litton Bionetics, Rockville, MD	1975 - 1978
Toxicology Technician, Lakeside Laboratories, Milwaukee, WI	1974 - 1975
Veterinary Technician, Butler Animal Hospital, Butler, WI	1971 - 1974

SELECTED AWARDS AND HONORS:

USEPA Bronze Medal for commendable service for establishing the FQPA Safety Factor Committee, 1999
USEPA Bronze Medal for commendable service for development and harmonization of testing guidelines for developmental and reproductive toxicity, 1999
USEPA/HED Certificate of Achievement for outstanding job performance and outstanding performance in the area of science and science policy, 2000
USEPA/OPP Honor Award for Scientific Excellence for the developmental neurotoxicity protocol review team, 2001
USEPA/OPP Bronze Medal for commendable service for completion of the FQPA 10X Guidance Document, 2002
USEPA/ORD Bronze Medal for commendable service for completion of the Review of RfD and RfC Setting Procedures, 2003
USEPA/ORD Bronze Medal for commendable service for participation in the IRIS Implementation Workgroup, 2004

INVITED LECTURES/SYMPOSIA (past 5 years):

Makris, S.L. (1999) EPA reproductive tissues sectioning guidelines: ovarian follicle counts. Presentation, North American Control Animals Database, Walter Reed Army Hospital, Washington, DC.
Makris, S.L. (1999) 1. FQPA 10X policy in OPP; 2. Neurotoxicity guidelines; 3. Events of neural tube development in lab animals and counterparts in human development, 4. Clinical signs and FOB; 5. Retrospective analysis of developmental neurotoxicity studies. Lectures, Neurotoxicology Course for Data Reviewers. Health Canada, Pest Management Regulatory Agency, Ottawa,
Makris, S.L. (1999) Current status of EPA guideline requirements and possible future requirements. Presentation, Neurotoxicology Workshop, Primedica Argus, North Wales, PA.
Makris, S.L. (1999) A retrospective analysis of EPA's developmental neurotoxicity testing battery. Presentation, 17th International Neurotoxicology Conference, Little Rock, AK.
Makris, S.L. (1999) Histopathological evaluation of the ovary: oocyte quantitation. Lecture, Reproductive Toxicology Course. American College of Toxicology, 20th annual meeting, McLean, VA.
Makris, S.L. (2000) How the EPA is considering susceptibility issues (under FQPA). Presentation, ILSI/HESI Annual Meeting, St. Petersburg, FL.

- Makris, S.L.** (2000) The developmental neurotoxicity study and its use in the regulation of pesticides and toxic substances by the USEPA. Presentation, 24th Annual meeting of the Neurobehavioral Teratology Society and 19th Annual Meeting of the Behavioral Toxicology Society, Palm Beach, FL.
- Makris, S.L.** (2000) The use of the developmental neurotoxicity study in the regulation of pesticides at USEPA. Presentation, 18th International Neurotoxicology Conference, Colorado Springs, CO.
- Makris, S.L.** (2001) OPPTS developmental immunotoxicity guideline development. Presentation, ILSI/HESI Developmental Immunotoxicity and Risk Assessment Workshop, Washington, DC.
- Makris, S.L.** (2001) Developmental toxicology risk assessment. Presentation, Toxicology Forum, 2001 Summer Meeting, Aspen CO.
- Makris, S.L.** (2002) General design issues in direct dosing of pre-weaning mammals, Presentation, 42nd Annual Teratology Society Meeting, Scottsdale, AZ.
- Makris, S.L.** (2002) The Food Quality Protection Act 10X safety factor - historical perspective, current guidance, and policy implications, Presentation, State of New Jersey Dept. of Environmental Protection, Division of Science, Research, and Technology, Trenton, NJ.
- Makris, S.L.** (2002) Developmental Neurotoxicity Testing, Presentation, 4th World Congress Alternatives and Animal Use in the Life Sciences, New Orleans, LA.
- Makris, S.L.** (2002) A government perspective on the history and use of the developmental neurotoxicity guideline, Presentation, 20th International Neurotoxicology Conference, Little Rock, AK.
- Makris, S.L.** (2003) Assessing developmental risk under FQPA, Presentation, Pesticide Workshop, NC State University, Dept. of Environmental and Molecular Toxicology, Raleigh, NC.
- Makris, S.L.** (2003) Determination of the appropriate FQPA safety factor(s) in toleran assessment, Presentation, Pesticide Workshop, NC State University, Dept. of Environmental and Molecular Toxicology, Raleigh, NC.
- Makris, S.L.** (2003) Current USEPA approach to assessing hazards of childhood exposures to pesticides, Presentation, 43rd Annual Teratology Society Meeting, 27th Annual Neurobehavioral Teratology Society Meeting, Philadelphia, PA.
- Makris, S.L.** (2003) Current agrochemical guidelines and future directions, Lecture, Modular Training Programme in Applied Toxicology, Reproductive Toxicology, University of Surrey, Guildford, UK.
- Makris, S.L.** (2004) EPA perspective on developmental immunotoxicity testing and use in risk assessment, Presentation, Toxicology Forum, Summer 2004 Meeting, Aspen CO.
- Makris, S.L.** (2004) Writing abstracts, Presentation, National Capital Area Chapter - Society of Toxicology, Career Day 2004 - Writing in the Sciences, Bethesda, MD.
- Makris, S.L.** (2004) Government perspective: USEPA/OPP experiences with juvenile animal testing. Presentation, American College of Toxicology, Continuing Education Course, Palm Springs, CA.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

- President, National Capital Area Chapter, Society of Toxicology, 2003-2004.
- Treasurer, National Capital Area Chapter, Society of Toxicology, 2001-2003.
- Expert Panel Member, OECD Working Group on Developmental Neurotoxicity Guidelines, 1994, 2001.
- Expert Panel Member, ILSI/RSI Working Group on Direct Dosing of Pre-Weaning Mammals, 2001-2003.
- Expert Panel Member, ILSI/RSI Working Group on Developmental Neurotoxicity Testing, 1999-2001.
- Committee Member, Society for Toxicologic Pathology, Sperm Parameters Working Group, 2000-2002.
- Committee Member, Society of Toxicologic Pathology, Oocyte Working Group, 2002-2004.
- Steering Committee Member, ILSI/HESI Working Group on Reproductive Endpoints, 2004-present.
- Expert Panel Member, ILSI/RSI Working Group on Interpretation of Developmental Neurotoxicity Data, 2004-present.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member, OPP/HED RfD Committee and Hazard Identification Assessment Review Committee, 1996-2004.

Member, OPP/HED FQPA Safety Factor Committee, 1999-2002.

Member, OPPTS 10X Task Force, 1997-1999.

Member, Risk Assessment Forum Task Force, Reference Dose/Reference Concentration Working Group, 1999-2002.

Co-Chair, Risk Assessment Forum Task Force, Immunotoxicity Risk Assessment Guidelines, 2004-present.

PUBLICATIONS:

Makris, S.L. (1999) The FQPA 10X safety factor: How traditional risk assessment practices play a role in its application. *Human and Ecological Risk Assessment* 5(5):1003-1012.

Kimmel, C.A and **S.L.Makris** (2000) Recent developments in regulatory requirements for developmental toxicology. *Toxicology Letters* 120:73-82.

Iyer, P., J.L. Schardein, and **S.L. Makris** (2003) Agrochemicals: Developmental Toxicity/ Reproductive Toxicity. In: *Encyclopedia of Agrochemicals*. ed. J.R. Plimmer. Wiley Publishing, Inc., Indianapolis, IN.

Crofton, K.M., **S.L. Makris**, W.F. Sette, E. Mendez, and K.C. Raffaele. (2004) A qualitative retrospective analysis of positive control data in developmental neurotoxicity studies. *Neurobehavioral Toxicology and Teratology* 26:345-352.

Hurt, M.E., G. Daston, K. Davis-Bruno, M. Feuston, B. Silva Lima, **S. Makris**, M.E. McNerney, J.D. Sandler, K. Whitby, P. Wier, and G.D. Cappon. (2004) Workshop summary - Juvenile animal studies: testing strategies and design. *Birth Defects Research (Part B)* 71:281-288.

Holsapple, M.P., L.A. Burns-Naas, K.L. Hastings, G.S. Ladics, A.L. Lavin, **S.L. Makris**, Y. Yang, and M.I. Luster. A testing framework for developmental immunotoxicology (DIT): roundtable discussion. *Toxicological Sciences* (submitted).

BIOGRAPHICAL SKETCH

Name: Suzanne B. McMaster

Position Title: Environmental Health Scientist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Texas	BS	1979	Psychology
University of Texas	MA	1981	Experimental Psychology
University of Oklahoma	PhD	1984	Biological Psychology
University of Oklahoma	Post doc.	1984	Pharmacology

PROFESSIONAL EXPERIENCE:

Environmental Health Scientist, EBB, HSD, NHEERL, ORD, EPA	2000 - Present
Assistant Laboratory Director for Pesticides and Toxics, NHEERL, ORD, EPA	1995 - 2000
Associate Laboratory Director for Pesticides and Toxics, HERL, ORD, EPA	1993 - 1995
Special Assistant to the Deputy Assistant Administrator, OPPTS, EPA	1991 - 1993
Regulatory Coordination Staff, OPPTS, EPA	1990 - 1991
Neurotoxicologist, OTS, EPA	1989 - 1990
Research Psychologist, US Army Medical Research Institute of Chemical Defense	1984 - 1989
Postdoctoral Fellow, University of Oklahoma School of Medicine	Jan. 1984 - August 1984

SELECTED AWARDS AND HONORS:

Recipient: Silver Medal, Neurotoxicity Risk Assessment Guidelines Team, 2000
Recipient: Susan E. Olive EEO Award, 2003

INVITED LECTURES/ SYMPOSIA:

Risk Assessment and Risk Management, University of North Carolina Department of Epidemiology, 2001, 2002, 2003, 2004.
Environmental Pollution and Behavioral Health: Developmental Effects - Animal Studies, University of North Carolina Department of Psychology, 2002
Risk Management and Policy, North Carolina State University, Department of Toxicology, 2001, 2003
Cross Border Issues in Environmental Toxicology, American College of Toxicology Annual Meeting, 2004
Motor Activity Measurement, Neurobehavioral Development Workshop, National Children's Study, 2004

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Member, International Joint Commission Great Lakes Science Advisory Board, 1995 - 1999
Member, Advisory Board, The Institute of Wildlife and Environmental Toxicology, Clemson University, 1996-1997
Co-chair, Workgroup on Ecosystems Health, International Joint Commission, 1997 - 1999
Member, Editorial Board, International Journal of Toxicology, 1997 - 1999.
Councilor, American College of Toxicology, 2000 - 2002
Visiting Instructor, Duke University, Nicholas School of the Environment, 2000-2002.
Secretary, American College of Toxicology, 2003 - 2004
Adjunct Assistant Professor, Duke University, Nicholas School of the Environment and Engineering, 2003 - present
Member, Board of Trustees, Association for Assessment and Accreditation of Laboratory Animal Care International, 2002 - 2004.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY

Member, Office of Research and Development Children's Health Research Strategy Workgroup, 1998-2000
Member, Interagency Coordinating Committee on the Validation of Alternative Methods, 2000-present

SELECTED PUBLICATIONS:

DeVito, M., L. Biegel, A. Brouwer, F. Brucker-Davis, A. O. Cheek, R. Christensen, T. Colborn, P. Cooke, J. Crissman, K. Crofton, D. Doerge, E. Gray, P. Hauser, P. Hurley, M. Kohn, J. Lazar, **S. McMaster**, M. McClain, E. McConnell, C. Meier, R. Miller, J. Tiege and R. Tyle. Screening Methods for Thyroid Hormone Disruptors. Environmental Health Perspectives, 107 (5), 1999.

McMaster, S.B., S.C. Hern., G.L. Robertson. Pesticide Exposure and Potential Health Effects on Children Along the US-Mexico Border, EPA/600/R02/085, 2002.

Sharbaugh, C., Viet, S.M., Fraser, A., **S.B. McMaster**. Comparable Measures of Cognitive Function in Human Infants and Laboratory Animals to Identify Environmental Health Risks to Children. Environmental Health Perspectives, 111 (13), 2003.

BIOGRAPHICAL SKETCH

NAME: **Pauline Mendola**POSITION TITLE: **Epidemiologist**

EDUCATION

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
State University of New York at Buffalo, Buffalo, NY	BA	1985	Social Sciences
State University of New York at Buffalo	MS	1990	Epidemiology
State University of New York at Buffalo	PhD	1994	Epidemiology & Community Health

PROFESSIONAL EXPERIENCE:

Research Instructor, February 1994-April 1996, Social & Preventive Medicine, University at Buffalo, Buffalo, NY

Project Director, October 1993-September 1997, New York State Angler Cohort Study, Social & Preventive Medicine, University at Buffalo, Buffalo, NY

Assistant Professor, April 1996-September 1997, Social & Preventive Medicine, University at Buffalo, Buffalo, NY

Adjunct Assistant Professor, January 1998 to present, Social & Preventive Medicine, University at Buffalo, Buffalo NY

Adjunct Assistant Professor, March 1998 to March 2003, Epidemiology, UNC at Chapel Hill, Chapel Hill, NC

Adjunct Associate Professor, March 2003 to present, Epidemiology, UNC at Chapel Hill, Chapel Hill, NC

Acting Branch Chief, Epidemiology and Biomarkers, May 2003 to May 2004, US EPA, NHEERL, HSD, Chapel Hill, NC

Epidemiologist, September 1997 to present, US EPA, NHEERL, HSD, Chapel Hill, NC

SELECTED AWARDS AND HONORS:

Scientific and Technological Achievement Award (STAA) Level III, FY2000, with Drs. Sherry G. Selevan and Carole A. Kimmel. US EPA, for editing the monograph entitled: "Identifying Critical Windows of Exposure for Children's Health" composed of 15 reports. Environmental Health Perspectives, 108(supp3):449-597(2000). Awarded for outstanding work to compile and integrate information on critical windows of exposure for children's health effects and its use in risk assessment, 2001 Charles C. Shepard Science Award nomination for excellence in scientific achievement, Laboratory and Methods category.

Nominated by the National Center for Environmental Health, Centers for Disease Control and Prevention, for the publication: Assessing exposure to disinfection byproducts in women of reproductive age living in Corpus Christi, Texas, and Cobb County, Georgia (Environ Hlth Persp 109: 597-604, 2001), 2002

Bronze Medal. US EPA, ORD Honor Award. Promoting Strong Science in Agency Decisions, for significant achievements in working with program offices to promote the use of strong science in Agency decisions, 2004

INVITED LECTURES/SYMPOSIA (selected presentations from a total of 22 in the last five years):

1. Session Co-Chair, Waterborne Infectious Diseases and Disinfection Processes. The 11th Conference of the International Society for Environmental Epidemiology and the 9th Conference of the International Society of Exposure Analysis, Athens, Greece, September 1999.
2. Invited panelist. Biomarkers of exposure. An International Workshop: Exposure Assessment for Disinfection By-Products in Epidemiologic Studies. Ottawa, Canada, May 7-10, 2000.

3. Invited speaker. Research Triangle Institute. Pilot studies evaluating symptomatic children for organophosphate pesticide exposure. Research Triangle Park, NC, August 4, 2000.
4. Symposium Co-Chair, Exposure Assessment Across Pan-America. Integrating Engineering, Earth and Health Sciences for Exposure Assessment in Environmental Epidemiology: Efforts & Needs Across Pan America. The 12th Conference of the International Society for Environmental Epidemiology, Buffalo, NY, August 2000.
5. Invited speaker. Pesticide exposure and potential adverse health effects in young children along the US-Mexico Border. Border XXI Symposium. The 12th Conference of the International Society for Environmental Epidemiology, Buffalo, NY, August 2000.
6. Invited speaker. Measuring the effects of exposure on children. Region/ORD Pesticides Workshop. October 31-November 2, 2000.
7. Symposium Organizer and Chair. Children as a susceptible subpopulation. The 13th Conference of the International Society for Environmental Epidemiology, Garmisch-Partenkirchen, Germany, September 2001.
8. Session Chair. Pesticides I. The 13th Conference of the International Society for Environmental Epidemiology, Garmisch-Partenkirchen, Germany, September 2001.
9. Invited speaker and participant. The longitudinal cohort study of environmental effects on child health and development. Second Workshop, EPA-GSF Cooperation on Environment and Health. Schloss El Mau, Germany, September 2001.
10. Invited speaker. National Children's Study. Informational Meetings On Children's Environmental Health. Briefing for Dr. Birgit van Tongelen, Administrator, European Commission, Directorate General Environment, Washington, DC. April 24, 2002.
11. Invited speaker. Briefing and co-host for Ms. Megumi Otaki of the Global Environmental Forum and Ms. Kanae Matusuzaki of the Japanese National Institute for Environmental Studies. Review of Children's Environmental Health Research at EPA. Research Triangle Park, NC, July 2, 2003.
12. Invited speaker. Development of a biomarkers database for the National Children's Study. International Conference on Biomarkers for Toxicology and Molecular Epidemiology, "New Tools for the 21st Century Problems", Atlanta, GA, March 15-17, 2004.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Project Advisory Committee. Replication of study of spontaneous abortions and disinfection by-product exposures. American Water Works Association Research Foundation. October 1998 to present.

Special Emphasis Panel Member. NIH/NIEHS review panel for studies in reproductive toxicology and epidemiology. March 1999.

Affiliate Member. Developmental Susceptibility Core, University of North Carolina at Chapel Hill, Center for Environmental Health and Susceptibility. 2001 to present.

Peer Review Panel Member. Force Health Protection Program Review Committee. United States Army Research and Material Command. Naval Health Research Center, San Diego, CA. May 2001.

Ad hoc project proposal review committee. Assessing antenatal biomarkers of preterm delivery. Thrasher Research Foundation, Salt Lake City, UT. February 2002.

Review committee. Collaborative studies of infant siblings of children with autism. National Alliance for Autism Research, Princeton, NJ. February-March 2002.

Steering committee member. North Carolina Birth Defects Research and Prevention Center. 2002 to present.

Organizing committee. The reproductive and developmental effects of ambient air pollution: A symposium and discussion forum. Chapel Hill, NC, February 26, 2003.

NIH Review Panel. Concept review for NICHD intramural research project. May, 2003.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

NERL/NHEERL Interaction Workgroup. US EPA. July 1998 to April 1999.

Project Advisory Committee. Replication of study of spontaneous abortions and disinfection by-product exposures. American Water Works Association Research Foundation. October 1998 to present.

Interagency Coordinating Committee. National Children's Study. President's Task Force on Environmental

Health Risks and Safety Risks to Children and the Children's Health Act of 2000. 1999 to present.

Interim chair for US EPA. Interagency Coordinating Committee. National Children's Study. President's Task Force on Environmental Health Risks and Safety Risks to Children and the Children's Health Act of 2000. July - October 2001; August- November 2002; August-November 2003; August-November 2004.

Interagency Coordinating Committee liaison to the Study Design Working Group. National Children's Study. President's Task Force on Environmental Health Risks and Safety Risks to Children and the Children's

Health Act of 2000. 2001 to present.

Interagency Coordinating Committee liaison to the Asthma Working Group. National Children's Study.

President's Task Force on Environmental Health Risks and Safety Risks to Children and the Children's Health Act of 2000. 2001 to 2004.

Interagency Coordinating Committee liaison to the Nutrition, Growth and Pubertal Development Working Group. National

Children's Study. President's Task Force on Environmental Health Risks and Safety Risks to Children and the Children's

Health Act of 2000. 2001 to 2004.

Drinking water steering committee. NHEERL Drinking Water Research Implementation Plan. February 2001 to present.

NHEERL Goal 8.2 Program Project Leader. Environmental Factors Associated with Children's Health and Development,

National Children's Study (NCS): Biologic indicators of susceptibility and sensitivity among children to assess potential risk of adverse health outcomes associated with environmental exposures.

November 2001 to present.

PUBLICATIONS (19 selected from a total of 26 published in last 5 years and overall total of 46 papers, 1 book chapter, 1 monograph and 2 EPA documents):

1. Moysich, K.B.; Mendola, P.; Schisterman, E.F.; Ambrosone, C.B.; Vena, J.E.; Shields, P.G.; Kostyniak, P.; Greizerstein, H.; Graham, S.; Marshall, J.R.; Freudenheim, J.L. An evaluation of proposed frameworks for grouping polychlorinated biphenyl (PCB) congener data into meaningful analytic units in a sample of environmentally exposed postmenopausal women. *Am J Indust Med* 35: 223-231; 1999.
2. Buck, G.M.; Mendola, P.; Vena, J.E.; Sever, L.E.; Kostyniak, P.; Greizerstein, H.; Olson, J.; Stephen, F.D. Paternal Lake Ontario fish consumption and risk of conception delay, New York State Angler Cohort. *Environ Res* 80: S13-S18; 1999.
3. Kostyniak, P.; Stinson, C.; Greizerstein, H.; Vena, J.; Buck, G.; Mendola, P. Relation of Lake Ontario fish consumption, lifetime lactation, and parity on breast milk PCB and pesticide concentrations. *Environ Res* 80: S166-S174; 1999.
4. Greizerstein, H.B.; Stinson, C.; Mendola, P.; Buck, G.M.; Kostyniak, P.J.; Vena, J.E. Comparison of PCB congeners and pesticide levels between serum and milk from lactating women. *Environ Res* 80: 280-286, 1999.
5. Royster, M.O.; Lobdell, D.T.; Mendola, P.; Perreault, S.D.; Selevan, S.A.; Rothman, S.G.; Robbins, W.A. Evaluation of a mail-in container for home collection of semen with potential uses in population-based, clinical, and occupational settings. *J Androl* 21: 478-484, 2000.
6. Selevan, S.G.; Kimmel, C.A.; Mendola, P. Identifying critical windows of exposure for children's health. *Environ Health Persp*, supplement 3, 108: 451-455, 2000.
7. Buck, G.M.; Vena, J.E.; Mendola, P.; Schisterman, E.F.; Sever, L.E.; Fitzgerald, E.; Kostyniak, P.J.; Greizerstein, H.; Olson, J.R. Parental consumption of polychlorinated biphenyl

- contaminated sport fish from Lake Ontario and reduced fecundability. *Epidemiol* 11: 388-393, 2000.
8. Cancel, A.M.; Lobdell, D.; Mendola, P.; Perreault, S.D. Objective evaluation of rat sperm hyperactivation using computer-assisted sperm analysis (CASA). *Hum Reprod* 15:1322-1328, 2000.
 9. Lynberg, M.; Nuckols, J.; Ashley, D.; Singer, P.; Mendola, P.; Wilkes, C.; Langois, P.; Miles, E.; Krapfl, H.; Speight, V.; Lin, B.; Small, L.; Miles, A.; Bonin, M.; Zeitz, P.; Tadmok A.; Forrester, M. Assessing exposure to disinfection byproducts in women of reproductive age living in Corpus Christi, Texas, and Cobb County, Georgia. *Environ Hlth Persp* 109: 597-604, 2001.
 10. Arbuckle, T.E.; Hrudey, S.E.; Krasner, S.W.; Nuckols, J.R.; Richardson, S.D.; Singer, P.; Mendola, P.; Dodds, L.; Weisel, C.; Ashley, D.; Froese, K.L.; Pegram, R.; Schultz, I.R.; Reif, J.; Bachand, A.M.; Benoit, F.M.; Lynberg, M.; Poole, C.; Waller, K. Assessing exposure in epidemiologic studies to disinfection byproducts in drinking water: Report from an international workshop. *Environ Health Persp* 110, suppl-1: 53-60, 2002.
 11. Miles, A.M.; Singer, P.C.; Ashley, D.; Lynberg, M.; Mendola, P.; Nuckols, J. Comparison of trihalomethanes in tap water with levels measured in blood samples. *Environ Sci Tech* 36: 1692-98, 2002.
 12. Buck, G.M.; Vena, J.E.; Greizerstein, H.B.; Weiner, J.M.; McGuinness, B.; Mendola, P.; Swanson, M.; Bloom, M.S.; Olson, J.R. PCB congeners and pesticides and female fecundity, New York State Angler Prospective Pregnancy Study. *Environ Toxicol and Pharmacol* 12: 83-92, 2002.
 13. Mendola, P.; Selevan, S.G.; Gutter, S.; Rice, D. Environmental factors associated with a spectrum of neuropsychological deficits. *Ment Retard Dev Disabil Res Rev* 8:188-197, 2002.
 14. Wu, T.; Mendola, P.; Buck, G. Secondary sexual characteristics and menses in US girls: Ethnic differences. *Pediatrics* 110:752-757, 2002.
 15. Wu, T.; Buck, G.M.; Mendola, P. Blood lead levels and sexual maturation in US girls: The Third National Health and Nutrition Examination Survey, 1988-1994. Online publication February 4, 2003, doi:10.1289/ehp.6008 (available at <http://dx.doi.org/>). *Environ Health Persp* 111:737-741, 2003.
 16. Windham, G.C.; Waller, K.; Anderson, M.; Fenster, L.; Mendola, P.; Swan, S. Chlorination byproducts in drinking water and menstrual cycle function. Online publication March 25, 2003, doi:10.1289/ehp.5922 (available at <http://dx.doi.org/>). *Environ Health Persp* 111:935-941, 2003.
 17. Wessels, D.; Barr, D.; Mendola, P. Use of biomarkers to indicate exposure of children to organophosphate pesticides: Implications for a longitudinal study of children's environmental health. Online publication September 10, 2003, doi:10.1289/ehp.6179 (available at <http://dx.doi.org/>). *Environ Health Persp* 111:1939-1946, 2003.
 18. Fenster, L.; Waller, K.; Windham, G.; Henneman, T.; Anderson, M.; Mendola, P.; Overstreet, J.W.; Swan, S. Trihalomethane levels in home tap water and semen quality. *Epidemiol* 14:650-658, 2003.
 19. Mendola, P.; Robinson, L.K.; Buck, G.M.; Druschel, C.M.; Fitzgerald, E.F.; Sever, L.E.; Vena, J.E. Birth defects risk associated with maternal sport fish consumption: Potential effect modification by sex of offspring. *Environ Res* 9:134-141, 2005.

BIOGRAPHICAL SKETCH

NAME: Marc Y. Menetrez

POSITION TITLE: Environmental Engineer

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
Long Island University	B.Sc.	1974	Biology
Duke University	M.S.	1976	Environmental Management
Duke University	M.S.	1982	Environmental Engineering
North Carolina State University	Ph.D.	1987	Environmental Engineering

PROFESSIONAL EXPERIENCE:

Environmental Engineer, Indoor Environment Management Branch, APPCD 1991-Present
Director, RAD Environmental Services, Durham, NC. 1986-1991
Research Assistant, North Carolina State University, Raleigh, NC. 1983-1987

PROFESSIONAL SOCIETIES:

Air and Waste Management Association
American Thoracic Society/ American Lung Association

SELECTED AWARDS AND HONORS:

EPA Performance Awards 1997 to 2003
EPA STAA Award Honorary Mention 2003
EPA Bronze Medal for Commendable Service. 2003

INVITED LECTURES/SYMPOSIA:

Transport and Exposure of Potential Biological Particulate Matter, AAAR 2000.
Fine Biological PM: Understanding Size Fraction Transport and Exposure Potential, PM 2000, AWMA.
Comparison of Analytical Methods For The Measurement of Non-Viable Biological PM, AWMA Engineering Solutions 2000.
Characteristic Growth Requirements of the Toxic Mold *Stachybotrys chartarum*, AWMA Indoor Air Quality Problems and Engineering Solutions Specialty Conference, July, 2003.
Testing The Effectiveness of UV Irradiation on Fungal Surface Contamination, American Society for Testing and Materials Conference Committee Member International Boulder Conference on Mold in the Indoor Environment: Assessment, Health and Physical Effects, and Remediation, Boulder, Colo., July 2004.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Consultant to Public and Industry on Mold Remediation.
CRADA Research Agreements with Steril-Aire Incorporated and Alistagen Incorporated.
Journal Reviewer: J of the Int. Soc. of the Built Environment, J of Air and Waste Management, American Soc. for Testing and Materials.
Grant reviewer; California Energy Comm., US General Services Admin.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Radiation Health Committee Member.
Team leader: NRMRL Asthma Research Initiatives.
Team Leader :IEMB Biocontaminant Program.
Member: ORD Children's Health: Toxic Mold Team.
US EPA Consultant on Mold Remediation.

PUBLICATIONS:

Menetrez, M. Y., Foarde, K. K., Webber, T. D., Dean, T. R., and Betancourt, D. A., "Efficacy of UV Irradiation on Eight Species of Bacillus," Industrial Microbiology and Biotechnology, (accepted for publication).

Menetrez, M. Y., Foarde, K. K., Webber, T. D., Dean, T. R., and Betancourt, D. A., "Growth Responses of *Stachybotrys chartarum* to Moisture Variation on Common Building Materials," *Indoor Built Environment: The Journal of the International Society of the Built Environment*, June 2004; 13:183-188, DOI: 10.1177/1420326X3043979.

Menetrez, M. Y., Foarde, K. K., and Ensor, D. S., "Research and Development of Prevention and Control Measures for Biological Indoor Air Pollutants," *Indoor Built Environment: The Journal of the International Society of the Built Environment*, April 2004;13:109-114, DOI:10.1177/14203260X04040612.

Menetrez, M. Y., and Foarde, K. K., "Emission Exposure Model for Transport of Toxic Mold," *Indoor Built Environment: The Journal of the International Society of the Built Environment*, February 2004;13:75-82, DOI: 10.1177/1420326X04041038.

Menetrez, M. Y., and Foarde, K. K., "Testing Antimicrobial Efficacy on Porous Materials," *Indoor Built Environment: The Journal of the International Society of the Built Environment*, October, 2002;11:202-207, DOI:10.1159/000066014.

Menetrez, M. Y., and Foarde, K. K., "Microbial Volatile Organic Compound Emission Rates and Exposure Model" *Indoor Built Environment: The Journal of the International Society of the Built Environment*, October, 2002;11:208-213, DOI:10.1159/000066016.

Menetrez, M. Y., Foarde, K. K., and Ensor, D. S., "An Analytical Method for the Measurement of Nonviable Bioaerosols," *Journal of the Air & Waste Management Association*, October 2001, 51:1436-1442.

Menetrez, M. Y., Foarde, K. K., Webber, T. D., Dean, T. R., and Betancourt, D. A., "Testing The Effectiveness of UV Irradiation on Fungal Surface Contamination," American Society for Testing and Materials Conference Committee Member, ASTM International Boulder Conference on Mold in the Indoor Environment: Assessment, Health and Physical Effects, and Remediation, Boulder, Colo., July 2004.

Menetrez, M. Y., Foarde, K. K., Betancourt, D. A., and Dean, T. R., "Characteristic Growth Requirements of the Toxic Mold *Stachybotrys chartarum*," *Indoor Air Quality Problems and Engineering Solutions Specialty Conference*, July, 2003, AWMA.

Menetrez, M. Y., Foarde, K. K., and Ensor, D. S., "Comparison of Analytical Methods For The Measurement of Non-Viable Biological PM," *Engineering Solutions 2000*, AWMA.

Menetrez, M. Y., Foarde, K. K., and Ensor, D. S., "Fine Biological PM: Understanding Size Fraction Transport and Exposure Potential," *PM 2000*, AWMA.

Menetrez, M. Y., Foarde, K. K., and Ensor, D. S., "Transport and Exposure of Potential Biological Particulate Matter," *AAAR 2000*.

BIOGRAPHICAL SKETCH

NAME: Virginia C. Moser

POSITION TITLE: Acting Branch Chief

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of North Carolina, Charlotte, NC		1972-1974	Chemistry, Pre-Pharmacy
University of North Carolina, Chapel Hill, NC	B.S.	1974-1977	Pharmacy
Medical College of Virginia/Virginia Commonwealth University, Richmond, VA	Ph.D.	1979-1983	Pharmacology and Toxicology
Neurotoxicology Division, US EPA, RTP, NC	NRC Postdoc.	1983-1985	Neurobehavioral Toxicology

PROFESSIONAL EXPERIENCE :

Acting Chief, Neurobehavioral Toxicology Branch, NTD, NHEERL, ORD EPA 2002 - Present
 Principal Investigator, NTD, NHEERL, ORD EPA 1993 - Present
 Contractor Scientist to NTD, ManTech Environmental Sciences, RTP 1985-1993

SELECTED AWARDS AND HONORS:

U.S. EPA Bronze Medal: promoting strong science in Agency decisions (2004)
 U.S. EPA NHEERL Laboratory Director Special Recognition Award: IACUC achievements (2002)
 U.S. EPA Science Achievement Award for Human Health Research: development and validation of functional observational battery (1999)

INVITED LECTURES/SYMPOSIA (Selected presentations from a total of 45):

International Neurotoxicity Association meeting, symposium on "Susceptible Sub-populations", talk entitled "Age-related sensitivity to anticholinesterase pesticides: Neurobehavioral and neurochemical outcomes", Leicester, England, 1999. *Neurotoxicol.* **21**:622, 2000
 Primedica Neurotoxicology Workshop, talk entitled "Quantitative and qualitative endpoints in observational batteries: History, principles and spirit of the guideline", North Wales, PA, 1999
 Seventeenth International Neurotoxicology Conference, "Children's Health and the Environment: Mechanisms and Consequences of Developmental Neurotoxicology", talk entitled "The functional observational battery for adult and developing rats", Little Rock, AR, 1999
 U.S. EPA Office of Pesticides Programs/Health Effects Division Training Series, talk entitled "FOB: What is it and what do the data mean?", Washington, DC, 2000
 Teratology Society annual meeting, workshop on "Interpretation of Data on Developmental Neurotoxicity", talk entitled "Neurobehavioral data interpretation in neurotoxicity studies", Palm Beach, FL, 2000. *Teratology* **61**:467
 California EPA workshop on "Children's Environmental Health - Developing a Framework", talk entitled "Neurobehavioral testing in animals and applications to risk assessment", Monterey, CA, 2001
 Twenty-first International Neurotoxicology Conference, "Infant and Child Neurotoxicity Studies: Subtle and Long-Term Effects", talk entitled "Long-term neurotoxicological and immunotoxicological consequences of developmental heptachlor exposure", Honolulu, HI, 2004
 U.S. EPA ORD/OPPTS seminar series, talk entitled "Novel Statistical Models of Dose-Additivity: Neurotoxicological Evaluation of a Mixture of Five Organophosphorus Pesticides", Washington, DC, 2004
 U.S. EPA OPP Risk Assessment Training and Certification Program, talk entitled "Neurobehavioral Toxicity Testing: What is it and What Does it Mean?", Washington, DC, 2004
 NCSU Rodent Pathology Course: Pathology of the Nervous System, symposium on "Basics of Neuropathology and Behavioral Evaluation", talk entitled "Functional testing in rodents: Reflections of underlying physiology/pathology?", Research Triangle Park, NC, 2004

SELECTED ASSISTANCE/LEADERSHIP FUNCTIONS PROVIDED TO THE SCIENTIFIC COMMUNITY:

Vice-President, President, Past-President, Behavioral Toxicology Society (2002-present)
Secretary-Treasurer, North Carolina Chapter Society of Toxicology (2000-2002)
Treasurer, Behavioral Toxicology Society (1998-2001)
Councilor, Neurotoxicology Specialty Section, Society of Toxicology (1994-1996)
Adjunct faculty position in the Duke University Integrated Toxicology Program (1998-present)
Affiliate Associate Professor, Department of Pharmacology and Toxicology, Virginia Commonwealth University (2002-present)
Editorial Board for *Toxicological Sciences* (1997-present), *Neurotoxicology* (1999-present), *Neurotoxicology and Teratology* (2001-present)
Section Editor for Neurotoxicology, *Drug and Chemical Toxicology* (2004-present)
ILSI Risk Science Institute, Expert Panel on Evaluation and Interpretation of Neurobehavioral Endpoints for Human Health Risk Assessment (2003-present)
Scientific organizing committee for International Neurotoxicology Association 2005 meeting (2004-present)
ILSI Risk Science Institute, Expert Panel on Direct Dosing of Pups in Developmental Neurotoxicity Studies (2002-2003)
Behavioral Test Methods Workshop, co-chair, breakout group, "Staffing, Logistics, Training, and Validation", Philadelphia, PA (2003)
NIEHS Grant Review Panel, Center for Oceans and Human Health RFP (2003)
Neurobehavioral Teratology Society and Behavioral Toxicology Society, joint meeting, organize and chair session "Revisiting the Developmental Neurotoxicity Test Guidelines", Palm Beach, FL (2000)
NIEHS Grant Review Panel, Xenobiotics and Neurodevelopmental Abnormalities Special Emphasis RFP (1999)
Treasurer, American Board of Toxicology (1999-2001)
Executive Board of Directors, American Board of Toxicology (1997-2001)
Member and Study Director, Steering Committee for the International Programme on Chemical Safety Collaborative Study on Neurobehavioral Screening Methods (1988-1997)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

U.S. EPA Risk Assessment Forum (2004-present)
Safe Pesticides/Safe Products NHEERL Research Implementation Team (2003-present)
Federal Interagency Committee on Neurotoxicology, ICON (2000-present)
OPP Carbamate Cumulative Risk Assessment Workgroup (2003-present)
NHEERL Technical Qualifications Promotion Board (2004-present)
NHEERL/RTP Institutional Animal Care and Use Committee (2001-present)
OPP/HED OP Comparative Sensitivity DCI Team reviewing submitted protocols and data (1999-present)
OSWER Phosmet Deregulation Workgroup (2002-2004)
Goal 4 Safe Communities NHEERL Research Implementation Team, co-chair (2000-2002)
Expert Neurotoxicity Workgroup for Test Guideline Revisions (1989-1991)

PUBLICATIONS (selected from a total of 82 published papers and 6 book chapters):

1. Moser VC (1999) Comparison of aldicarb and methamidophos neurotoxicity at different ages in the rat: Behavioral and biochemical parameters. *Toxicol. Appl. Pharmacol.* **157**:94-106.
2. Padilla S, Buzzard J and Moser VC (2000) Comparison of the role of esterases in the differential age-related sensitivity to chlorpyrifos and methamidophos. *Neurotoxicology* **21**:49-56.
3. Moser VC (2000) Dose-response and time-course of neurobehavioral changes following oral chlorpyrifos in rats of different ages. *Neurotoxicol. Teratol.* **22**:713-723.
4. Moser VC (2000) Observational batteries in neurotoxicity testing. *Int. J. Toxicol.* **19**:407-411.
5. Moser VC (2000) The functional observational battery in adult and developing rats. *Neurotoxicology* **21**:989-996.
6. Moser VC, Shafer TJ, Ward TR, Meacham CA, Harris MW and Chapin RE. (2001) Neurotoxicological outcomes of perinatal heptachlor exposure in the rat. *Tox. Sci.* **60**:315-326.

7. Moser VC, Barone S, Jr., Smialowicz RJ, Harris MW, Davis BJ, Overstreet D, Mauney M and Chapin RE. (2001) The effects of perinatal tebuconazole exposure on adult neurological, immunological, and reproductive function in rats. *Tox. Sci.* **62**:339-352.
8. Chanda SM, Lassiter TL, Moser VC, Barone S Jr. and Padilla S. (2002) Tissue carboxylesterases and chlorpyrifos toxicity in the developing rat. *Human Ecol. Risk Ass.* **8**:75-90.
9. Padilla S, Sung H-J and Moser V. (2004) Further assessment of an *in vitro* screen that may help identify organophosphorus pesticides that are more acutely toxic to the young. *J. Toxicol. Environ. Health* **67**:1477- 1489.

BIOGRAPHICAL SKETCH**NAME: Jacqueline Moya****POSITION TITLE: Environmental Engineer****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
University of Puerto Rico Mayaguez Campus, Mayaguez, P.R.	B.S.	1984	Chemical Engineering
Graduate Courses: George Washington University University of Maryland		1988	Biostatistics
		1990	Environmental Policy
		1990	Quantitative Methods to Political Analysis
		1991	Microeconomics

PROFESSIONAL EXPERIENCE :

Environmental Engineer, National Center for
Environmental Assessment, ORD EPA 1986 - present
Supervisory Environmental Engineer, acting, Office
Of Health and Environmental Assessment, ORD EPA 6/1993-8/1993
Chemical Engineer, Office of Waste Programs Enforcement,
OSWER, EPA 1984- 1986

SELECTED AWARDS AND HONORS:

Recipient: Bronze Medal Exposure Factors Handbook 1999
Recipient: Bronze Medal for contributions to the Voluntary
Children's Chemical Evaluation Program 2003
Recipient: Bronze Medal for Strong Science 2004
Recipient: Peer Award on Human Resources 1991
Quality Steps Increases in 1997 and 2002
Special Act Awards 1987 -2004

INVITED LECTURES/SYMPOSIA (Presentations from the last 4 years):

1. Fish Consumption Database. Regional Risk Assessors Meeting. Boston, MA. May 2004.
2. Example Exposure Scenarios (poster presentation). Regional Risk Assessors Meeting. Boston, MA. May 2004.
3. Exposure Factors Program (poster presentation). Science Forum, Washington DC. June 2004.
4. EPA Risk Assessment Practices Evaluation – Exposure Assessment. Science Advisory Board, Washington DC. July 2004.
5. Child-Specific Exposure Factors Handbook. Regional Risk Assessors Meeting, Atlanta, GA. April 2003.
6. Environmental Health and the Latino Children. International Latino Women Congress, San Juan, P.R. 2002.
7. Factors Affecting Children Environmental Exposures and the Impact in the Latino Community. 18th International Neurotoxicology Conference, Little Rock, AR, 2000.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Member of Steering Committee of International Society of Exposure Analysis (ISEA) 2000.

Chair, Session on Children Environmental Exposures. ISEA 2000

Participant: ATSDR Soil Ingestion Pica Workshop, Atlanta, GA, June 2000.

Participant: Exposure Inhalation Issues, Regional Risk Assessors Conference, Georgia, 2003.

Participant: Probabilistic Risk Assessment Panel Discussion, Washington DC, 2004.

Member of Editorial Board of the Journal of Children's Health.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member, Risk Assessment Forum Exposure Oversight Group (1998 – 2003)

Member, Children Age Grouping Workgroup (1999 – present)

Member, Children's Health Risk Assessment Framework Workgroup, (2003 – present)

Chair, Exposure Factors Program Advisory Group, (2004 – present)

PUBLICATIONS:

1. Moya J. Overview of fish consumption rates in the United States. *Journal of Human and Ecological Risk Assessment*. In Press.
2. Moya J., Bearer CF, MD, PhD and. Etzel RA, MD, PhD. Children's behavior and physiology and how it affects exposure to environmental contaminants. *Journal of Pediatrics* Vol. 113 No. 4 April 2004; pp. 996-1006.
3. Moya J., Phillips L. Overview of the use of the U.S. EPA exposure factors handbook. *International Journal of Hygiene and Environmental Health*. March 2002, vol 205, no. 1-2; pp. 155-159(5)
4. Moya J. and Phillips L. Analysis of consumption of home-produced foods. *Journal of Exposure Analysis and Environmental Epidemiology*. September/October 2001, Volume 11, Number 5; pp. 398-406.
5. Tulse NS, Suggs JC, McCurdy T, Cohen-Hubal EA and Moya J. Frequency of mouthing behavior in young children. July 2002, Volume 12, Number 4; pp. 259-264.
6. Moya J, Howard C, Corsi R, Volatilization of chemicals from tap water to indoor air while showering with contaminated water, *ES&T* 33(14); 2321-2327 (1999).

BIOGRAPHICAL SKETCH

NAME: Lucas M. Neas	POSITION TITLE: Health Scientist (Epidemiologist)
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EDUCATION

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Purdue University	B.A.	1974	Political Science
W.V. College of Graduate Studies	M.S.E.	1986	Industrial Engineering
Harvard School of Public Health	Sc.D.	1991	Epidemiology

Professional Experience:

1975-1977 Statistician, Bureau of Vital Statistics, West Virginia Department of Health

1977-1978 Health Systems Analyst, Governor's Office of Health Affairs, State of West Virginia

1978-1982 Research Analyst, Office of Health Planning and Evaluation, West Virginia Department of Health

1982-1986 Research Analyst, Office of Environmental Health Services, West Virginia Department of Health

1986-1987 Consultant, National Institute for Chemical Studies, Charleston, WV

1987-1991 Research Assistant, Harvard Six Cities Study, Harvard School of Public Health

1991-1992 Research Associate in Environmental Health and Epidemiology, Harvard School of Public Health

1991-1992 Research Fellow in Medicine, Brigham and Women's Hospital

1992-1998 Assistant Professor of Environmental Health and Epidemiology, Harvard School of Public Health

1993-1998 Instructor in Medicine, Channing Laboratory, Harvard Medical School

1993-1998 Associate Epidemiologist, Department of Medicine, Brigham & Women's Hospital

1994-1995 Consultant, World Health Organization, Melbourne, Australia, and Oslo, Norway

1995- Visiting Scientist, GSF-Forschungszentrum fur Umwelt und Gesundheit, Institute fur Epidemiologie, Neuherberg, Germany

1998- Health Scientist (Epidemiologist), Epidemiology and Biomarkers Branch, Human Studies Division,
National Health Effects and Exposure Research Laboratory, US Environmental Protection Agency, Chapel Hill, NC

1998- Adjunct Assistant Professor of Environmental Health, Harvard School of Public Health

1998- Adjunct Associate Professor of Epidemiology, University of North Carolina at Chapel Hill

Major professional service:

1994 Task Group, Environmental Health Criteria for Nitrogen Oxides, WHO

1995 Working Group, Indoor Air Quality Guidelines for Europe, WHO

1996 Workshop on Particulate Matter Research Needs, US EPA

1994-1996	Search Committee in Biostatistics, Harvard School of Public Health
1995-1998	Human Subjects Committee, Harvard School of Public Health
2000-2001	Nominating Committee, Environmental and Occupational Health Assembly, American Thoracic Society

Research:

Peer-reviewed publications

- 1) Pearson RJC, Neas LM, Tamragouri RN. Cancer in West Virginia: How do we stand? West Virginia Medical Journal, 1984; 80(11):244-247.
- 2) Neas LM, Dockery DW, Ware JH, Spengler JD, Speizer FE, Ferris BF Jr. The association of indoor nitrogen dioxide with respiratory symptoms and pulmonary function in children. Am J Epidemiol, 1991; 134(2):204-19.
- 3) Ware JH, Spengler JD, Neas LM, Samet JM, Wagner GR, Coultas D, Ozkaynak H, Schwab M. Respiratory and irritant health effects of ambient volatile organic compounds: The Kanawha County Health Study. Am J Epidemiol, 1993; 137:1287-1301.
- 4) LM, Ware JH, Dockery DW, Spengler JD, Speizer FE, Ferris BF Jr. Concentration of indoor particulate matter as a determinant of respiratory health in children. Am J Epidemiol. 1994; 139:1088-99.
- 5) Schwartz J, Dockery DW, Neas LM, Wypij D, Ware JH, Spengler JD, Koutrakis P, Speizer FE, Ferris BG, Jr. Acute effects of summer air pollution on respiratory symptom reporting in children. Am J Respir Crit Care Med, 1994; 150:1234-42.
- 6) Neas LM, Dockery DW, Koutrakis P, Tollerud DJ, Speizer FE, . The association of ambient air pollution with twice daily peak expiratory flow measurements in children. Am J Epidemiol, 1995; 141:111-22.
- 7) Neas LM, Schwartz J. The determinants of pulmonary diffusing capacity in a national sample of US adults. Am J Respir Crit Care Med, 1996; 153:656-64.
- 8) Neas LM, Dockery DW, Burge H, Koutrakis P, Speizer FE. Fungus spores, air pollutants and other determinants of peak expiratory flow rate in children. Am J Epidemiol 1996; 143:797-807.
- 9) Raizenne M, Neas LM, Damokosh AI, Dockery DW, Spengler JD, Koutrakis P, Ware JH, Speizer FE. Health effect of acid aerosols on North American children: pulmonary function. Environ Health Perspect 1996; 104:500-505.
- 10) Dockery DW, Cunningham J, Damokosh AI, Neas LM, Spengler JD, Koutrakis P, Ware JH, Raizenne M, Speizer FE. Health effect of acid aerosols on North American children: respiratory symptoms. Environ Health Perspect 1996; 104:506-514.
- 11) Schwartz J, Dockery DW, Neas LM. Is daily mortality associated specifically with fine particles? J Air Waste Manage Assoc 1996; 46:927-939.
- 12) Laden F, Spiegelman D, Neas LM, Colditz GA, Hankinson SE, Manson JE, Stampfer MJ, Willett WC, Speizer FE, Hunter DJ. Geographic variation of breast cancer incidence rates in the Nurses' Health Study: A cohort of US women. JNCI 1997; 89:1373-78.
- 13) Korrick SA, Neas LM, Dockery DW, Gold DR, Allen GA, Hill LB, Kimball KD, Rosner B, Speizer FE. Effects of ozone and other pollutants on pulmonary function of adult hikers. Environ Health Perspect 1998; 106:93-99.
- 14) Neas LM, Schwartz J. Pulmonary function levels as predictors of mortality in a national sample of US adults. Am J Epidemiol 1998; 147:1011-18.
- 15) Hoek G, Dockery DW, Pope CA III, Neas LM, Roemer W, Brunekreef B. PM10 is associated with substantial increases of the prevalence of large peak flow decrements in children: a re-analysis of peak flow data of five panel studies. Eur Respir J 1998; 11:1307-11

- 16) Azaroff LS, Neas LM. Acute health effects associated with nonoccupational pesticide exposure in rural El Salvador. *Environ Res* 1999; 80:158-64.
- 17) Laden F, Neas LM, Spiegelman D, Hankinson SE, Willett WC, Ireland K, Wolff MS, Hunter DJ. Predictors of plasma concentrations of DDE and PCBs in a group of U.S. women. *Environ Health Perspect* 1999;107:75-81.
- 18) Neas LM, Dockery DW, Koutrakis P, Speizer FE. Fine particles and peak flow in children: acidity versus mass. *Epidemiology* 1999; 10:550-3.
- 19) Neas LM, Schwartz J, Dockery DW. A case-crossover analysis of air pollution and mortality in Philadelphia. *Environ Health Perspect* 1999; 107:629-31.
- 20) Neas LM. Fine particulate matter and cardiovascular disease. *Fuel Processing Technology* 2000; 65-66:55-67.
- 21) Schwartz J, Neas LM. Fine particles are more strongly associated than coarse particles with acute respiratory health effects in schoolchildren. *Epidemiology* 2000; 11:6-10.
- 22) Laden F, Neas LM, Tolbert PE, Holmes MD, Hankinson SE, Spiegelman D, Speizer FE, Hunter DJ. Electric blanket use and breast cancer in the Nurses' Health Study. *Am J Epidemiol* 2000; 152:41-9.
- 23) Klemm RJ, Mason RM Jr., Heilig CM, Neas LM, Dockery DW. Is daily mortality associated specifically with fine particles? Data reconstruction and replication of analyses. *J Air Waste Manag Assoc* 2000; 50:1215-22.
- 24) Laden F, Neas LM, Dockery DW, Schwartz J. Association of fine particulate matter from different sources with daily mortality in six U.S. cities. *Environ Health Perspect* 2000; 108:941-7.
- 25) Mortimer KM, Tager IB, Dockery DW, Neas LM, Redline S. The effect of ozone on inner-city children with asthma: identification of susceptible subgroups. *Am J Respir Crit Care Med* 2000; 162:1838-45.
- 26) Creason J, Neas L, Shy C, Williams R, Sheldon L, Liao D, Walsh D. Particulate matter and heart rate among elderly retirees: The Baltimore 1998 PM study. *J Exposure Anal Environ Epidemiol* 2001; 11:116-22.
- 27) Mortimer KM, Tager IB, Dockery DW, Neas LM, Redline S. The effect of ozone on inner-city children with asthma: identification of susceptible subgroups. *Am J Respir Crit Care Med* 2000; 162:1838-45.
- 28) Vajanapoom N, Shy CM, Neas LM, Loomis D. Estimation of particulate matter from visibility in Bangkok, Thailand. *J Expo Anal Environ Epidemiol* 2001 Mar-Apr;11(2):97-102
- 29) von Mutius E, Schwartz J, Neas LM, Dockery D, Weiss ST. Relation of body mass index to asthma and atopy in children: the National Health and Nutrition Examination Study III. *Thorax* 2001 Nov;56(11):835-8.
- 30) Mortimer KM, Neas LM, Dockery DW, Redline S, Tager IB. The effect of air pollution on inner-city children with asthma. *Eur Respir J* 2002 Apr;19(4):699-705.
- 31) Heinrich J, Hoelscher B, Frye C, Meyer I, Pitz M, Cyrys J, Wjst M, Neas L, Wichmann HE. Improved air quality in reunified Germany and decreases in respiratory symptoms. *Epidemiology*. 2002 Jul;13(4):394-401.
- 32) Vajanapoom N, Shy CM, Neas LM, Loomis D. Associations of particulate matter and daily mortality in Bangkok, Thailand. *Southeast Asian J Trop Med Public Health*. 2002 Jun;33(2):389-99.
- 33) Wallace LA, Mitchell H, O'Connor GT, Neas L, Lippmann M, Kattan M, Koenig J, Stout JW, Vaughn BJ, Wallace D, Walter M, Adams K, Liu LJ; Inner-City Asthma Study. Particle concentrations in inner-city homes of children with asthma: the effect of smoking, cooking, and outdoor pollution. *Environ Health Perspect*. 2003 Jul;111(9):1265-72.

- 34) Noble CA, Mukerjee S, Gonzales M, Rhodes CE, Lawless PA, Natarajan S, Myers EA, Norris GA, Smith L, Özkaynak H, Neas LM. Continuous measurement of fine and ultrafine particulate matter, criteria pollutants and meteorological conditions in urban El Paso, Texas. *Atmos Environ* 2003; 37:827-840.
- 35) Mukerjee S, Smith LA, Norris GA, Morandi MT, Gonzales M, Noble CA, Neas LM, Özkaynak HA. Field Method Comparison Between Passive Air Samplers and Continuous Monitors for Volatile Organic Compounds and NO₂ in El Paso, Texas, USA. *J Air Waste Manage Assoc* 2004; 54:307-319.
- 36) Mukerjee S, Norris GA, Smith LA, Noble CA, Neas LM, Özkaynak AH, Gonzales M. Receptor Model Comparisons and Wind Direction Analyses of Volatile Organic Compounds and Submicrometer Particles in an Arid, Binational, Urban Airshed. *Environ Sci Technol*. 2004 Apr 15;38(8):2317-27.
- 37) Riediker M, Cascio WE, Griggs TR, Herbst MC, Bromberg PA, Neas L, Williams RW, Devlin RB. Particulate matter exposure in cars is associated with cardiovascular effects in healthy young men.. *Am J Respir Crit Care Med*. 2004 Apr 15;169(8):934-40.
- 38) Gonzales M, Qualls C, Hudgens E, Neas L. Characterization of a spatial gradient of nitrogen dioxide across a United States-Mexico Border City during winter. [Submitted to *Science of the Total Environment*, 2004]
- 39) Smith L, Mukerjee S, Gonzales M, Stallings C, Neas L, Özkaynak H. Use of GIS and ancillary variables to predict submicrometer particulate, volatile organic compound and nitrogen dioxide pollutant levels at unmonitored locations [Manuscript, 2004]

BIOGRAPHICAL SKETCH

NAME: Stephen Nesnow

POSITION TITLE: Senior Research Scientist

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Bucknell University, Lewisburg, PA	BS	1963	Chemistry
New York University, New York, NY	MS	1966	Organic Chemistry
New York University, New York, NY	PhD	1968	Organic Chemistry

PROFESSIONAL EXPERIENCE:

1999-Present	Senior Research Scientist, Environmental Carcinogenesis Division, National Health and Environmental Effects Research Laboratory US EPA.
1994-1999	Chief, Biochemistry & Pathobiology Branch, Environmental Carcinogenesis Division, National Health and Environmental Effects Research Laboratory, US EPA.
1979-1994	Chief, Carcinogenesis and Metabolism Branch, Genetic Toxicology Division, Health Effects Research Laboratory, US EPA.
1977-1979	Chief, Metabolic Effects Section, Biochemistry Branch, Health Effects Research Laboratory, US EPA.
1993-Present	Adjunct Professor, Department of Pathology and Laboratory Medicine, University of North Carolina School of Medicine
1983-1993	Adjunct Associate Professor, Department of Pathology and Laboratory Medicine, University of North Carolina School of Medicine.
1977-1983	Adjunct Assistant Professor, Department of Pathology, University of North Carolina School of Medicine.
1976-1977	Assistant Professor, Department of Pathology, University of North Carolina School of Medicine.
1974-1976	Assistant Scientist, Department of Human Oncology, University of Wisconsin, Madison, WI.
1973-1974	Research Associate, McArdle Laboratory for Cancer Research, University of Wisconsin, Madison, WI.
1970-1973	Postdoctoral Fellow, McArdle Laboratory for Cancer Research, University of Wisconsin, Madison, WI.
1968-1970	Postdoctoral Fellow, Sloan Kettering Institute for Cancer Research, New York, NY.

PROFESSIONAL SOCIETIES:

American Association for Cancer Research, American Chemical Society.

SELECTED AWARDS AND HONORS:

Recipient: Nine EPA Scientific and Technology Achievement Awards: 1981, 1985, 1987, 1990, 1992, 1995 (Level 1), 1996, 2000, and 2003 (Level 1).

Recipient: NHEERL Goal 4 Award for Research Integration, 2003.

Recipient: Travel Award to the 15th International Cancer Congress, Hamburg, Germany, 1990.

Recipient: EPA Bronze Medal for the Diesel Research Program 1980.

SELECTED INVITED LECTURES/SYMPOSIA (Selected from a total of 120):

- 3rd Annual Buffalo Symposium on Environmental Sciences, Buffalo, NY 1999.
- International Symposium on Pathophysiology, Lahti, Finland, 1999.
- Genotoxic and Environmental Mutagen Society, Durham, NC, 1999.
- UNC SPH Center for Mathematical Modeling, Chapel Hill, NC, 1999.
- 17th International Symposium on Polycyclic Aromatic Compounds, Bordeaux, France, 1999.
- 8th Charles Heidelberger Memorial Symposium, Marina del Rey, CA, 2000.
- Seminar, University of Cincinnati, Cincinnati, OH, 2001.
- 5th International Cancer Congress, Oslo, Norway, 2002.

9. 9th Charles Heidelberger Memorial Symposium, Bergen, Norway, 2002.
10. National Academy of Sciences, Cross Species Extrapolation Workshop, Washington, DC, 2004.

SELECTED ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Editorial Board, Cancer Letters, 1984-present.
 Editorial Board, Journal of Environmental Science and Health, 1992-present.
 Editorial Board, Chemical Research in Toxicology, 2000-2002, 2004-2006.
 Member, Aspen Cancer Conference Advisory Committee, 1988-2001.
 Member, Electric Power Research Institute Scientific Advisory Board on the Manufactured Gas Plant (MPG) Program, 1994-1999.
 Reviewer, American Cancer Society Research Professorships Applicants, 1999.
 Member, Board of Governors, ISPAC, 1997-2001.
 Member, Award Committee and Program Committee, ISPAC, 1999-2003.
 Treasurer, International Society of Polynuclear Aromatic Compounds, 1999-2001.
 Chairman, Program Committee 18th ISPAC, 2001.
 Member, Program Committee 19th ISPAC, 2003.

SELECTED ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member, NHEERL Capital Equipment Committee, 1991-present.

Member, NHEERL Health Technical Qualifications Board, 1996-1999.

Member, ORD Strategy Working Group on Human Health Risk Assessment, 1998-2001.

Lead, NHEERL Goal 4 P450/Conazole Program Project Program, 2001-present.

Member, ORD Air Toxics Implementation Committee, 2001-present.

PUBLICATIONS (1999 to the present: 20 out of a total of 212 publications)

1. G.L. Lambert, W. Padgett, M. George, K. Kitchin and S. Nesnow. Quantitative Analysis of Alachlor Protein Adducts by Gas Chromatography-Mass Spectrometry. **Anal. Biochem.**, 268, 289-296, 1999.
2. S. Nesnow, C. Davis, W. Padgett, M. George, G. Lambert, L. Adams and L. King. Biotransformation and DNA adduct formation of 8,9-dihydroxy-8,9-dihydrodibenzo[*a,l*]pyrene by induced rat liver and human CYP1A1 and CYP1B1 microsomes. **Polycyclic Aromatic Compounds**, 14/15, 181-190, 1999.
3. C. Davis, D. Desai, S. Amin and S. Nesnow. Comparison of the Morphological Transforming Activities of Fjord-region PAHs with Dibenzo[*a,e*]pyrene and Benzo[*a*]pyrene. **Polycyclic Aromatic Compounds**, 14/15, 151-160, 1999.
4. J.A. Ross and S. Nesnow. Polycyclic Aromatic Hydrocarbons: Correlations between DNA Adducts and *Ras* Oncogene Mutations. **Mutation Research**, 424, 155-166, 1999.
5. S. Nesnow, W. Cavane, T.M. Gilmer, D.G. Kaufman, T.J. Slaga, R. Hohman, J.M. Bishop, M.C Poirier, C.C., Harris, B.F. Trump, S.H. Yuspa, A.M. Pfeifer, M.I. Sherman, R. Tennant. Thirteenth Aspen Cancer Conference: Workshop On Mechanisms Of Toxicity and Carcinogenesis. **Molecular Carcinogenesis**, 25, 99-106, 1999.
6. S. Nesnow, C. Davis, W.T. Padgett, L. Adams, M. Yacopucci, and L. C. King. 8,9-Dihydroxy-8,9-dihydrodibenzo[*a,l*]pyrene is a potent morphological cell transforming agent in C3H10T2Cl8 mouse embryo fibroblasts in the absence of detectable stable covalent DNA adducts. **Carcinogenesis**, 21, 1253-1257, 2000.
7. S. Nesnow, C. Davis M. Pimentel, M. J. Mass, G.B. Nelson, and J.A. Ross. Interaction analyses of binary mixtures of carcinogenic PAHs using morphological cell transformation of C3H10T2Cl8 mouse embryo fibroblasts in culture. **Polycyclic Aromatic Compounds**, 21, 31-42, 2000.

8. S. Nesnow, C. Davis, D. Desai, and S. Amin. Evaluation of Benzo[*c*]chrysene Dihydrodiols in The Morphological Cell Transformation of Mouse Embryo Fibroblast C3H10T2Cl8 Cells, **Polycyclic Aromatic Compounds**, 21, 203-214, 2000.
9. W. Padgett, C. Davis, G. Lambert, G. B. Nelson, J. A. Ross, M. Yacopucci and S. Nesnow. Biotransformation of *trans*-4,5-Dihydroxy-4,5-dihydrobenzo[*a*]pyrene to Benzo[*a*]pyrene-bis-dihydrodiols and DNA Adducts by Induced Rat Liver Microsomes, **Chem Res. Tox.**, 13, 1125-1134, 2000.
10. L.C. King, M.J. Kohan, L. Brooks, G. Nelson, J.A. Ross, J. Allison, L. Adams, D. Desai, S. Amin, W. Padgett, G. R. Lambert, and S. Nesnow. An Evaluation of the Mutagenicity, Metabolic Activation, and DNA Adduct Formation of 5-Nitrobenzo[*b*]naphtho[2,1-*d*]thiophene, **Chem. Res. Toxicol.**, 14, 661-671, 2001.
11. D. Desai, A.K Sharma, M. Pimentel, J-H Lin, K. El-Bayoumy, S. Nesnow and S. Amin. Synthesis, *In Vitro* Metabolism, Mutagenicity, and DNA-Adduction of Naphtho[1,2-*e*]pyrene, **Polycyclic Aromatic Compounds**, 23, 267-276, 2002.
12. S. Nesnow, C. Davis, G. B. Nelson, G. Lambert, W. Padgett, M. Pimentel, A. H. Tennant, A. D. Kligerman and J. A. Ross. Comparison Of The Genotoxic Activities of The K-Region Dihydrodiol of Benzo[*a*]pyrene with Benzo[*a*]pyrene in Mammalian Cells: Morphological Cell Transformation; DNA Damage; and Stable Covalent DNA Adducts. **Mutation Research**, 521, 91-102, 2002.
13. D. Desai, A.K. Sharma, J.-M. Lin, J. Krzeminski, K. El-Bayoumy, M. Pimentel, S. Nesnow, and S. Amin. Synthesis, *in vitro* Metabolism, Cell Transformation, Mutagenicity, and DNA Adduction of benzo[*c,mno*]chrysene. **Chem. Res. Toxicol.** 15, 964-971, 2002.
14. L. Flowers, S. H. Rieth, V.J. Cogliano, G.L. Foureman, Richard Hertzberg, E.L. Hofmann, D.L. Murphy, S. Nesnow, R.S. Schoeny. Workshop On Approaches To Assessing The Health Risk of PAH Mixtures. **Polycyclic Aromatic Compounds**, 23, 811-821, 2002.
15. S. Nesnow, B.C. Roop, G. Lambert, M. Kadiiska, R. P. Mason, W.R. Cullen, and M.J. Mass. DNA Damage Induced by Methylated Trivalent Arsenicals is Mediated by Reactive Oxygen Species. **Chem. Res. Toxicol.** 15, 1627-1634, 2002.
16. N. Balu, W.T. Padgett, G. Lambert, A.E. Swank, A.M. Richard, and S. Nesnow. Identification and Characterization of Novel Stable Deoxyguanosine and Deoxyadenosine Adducts of Benzo[*a*]pyrene-7,8-quinone from Reactions at Physiological pH. **Chem. Res. Toxicol.**, 17, 827-838, 2003
17. M. Banasiewicz, G. Nelson, A. Swank, N. Grubor, J. Ross, S. Nesnow, H. Köfeler, G. J. Small, and R. Jankowiak. Identification and Quantitation of Benzo[*a*]pyrene Derived DNA Adducts Formed at Low Adduction Level in Lung Tissue of Male A/J Strain Mice. **Anal. Biochem.**, 334, 390-400, 2004.
18. G. Sun, D.B. Tully, G.R. Lambert, A.K. Goetz, D. Wolf, D.J. Dix, and S. Nesnow. Propiconazole-Induced Cytochrome P450 Gene Expression and Enzymatic Activities in Rat and Mouse Liver. **Tox. Letters** (in press), 2004.
19. A. Solhaug, S. Øvrebø, M. Låg, P. E. Schwarze, S. Nesnow and J.A. Holme. Role of Cell Signaling in B[*a*]P-Induced Apoptosis: Characterization of Unspecific Effects of Cell Signaling inhibitors and Apoptotic Effects of B[*a*]P Metabolites. **Chemico.-Biol. Interact.** (in press), 2004.
20. S. Nesnow. *Complex Mixtures of Chemical Carcinogens: Principles of Action and Human Cancer*. In: Molecular Carcinogenesis, Warshawsky, D. and Landolph, J. Eds., **CRC Press**, (in press), 2004.

BIOGRAPHICAL SKETCH**NAME:** Halúk Özkaynak**POSITION TITLE:** Senior Scientist**EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
Middle East Technical University, Ankara, Turkey	B.S.	1966-1970	Physics
Harvard University, Cambridge, MA	Ph.D.	1970-1975	Mathematical Physics
Harvard School of Public Health, Boston, MA	M.A.	1975-1976	Air Pollution Control
Harvard School of Public Health, Boston, MA	Postdoc.	1975-1976	Environmental Health

PROFESSIONAL EXPERIENCE:

Senior Scientist, ORD, NERL, EPA	2004 - Present
Senior Science Adviser, HEASD, NERL, EPA	2002-2004
Exposure Modeling Program Science Lead, HEASD, NERL, EPA	1998-2002
Lecturer, Dept. of Environmental Health, Harvard School of Public Health, Boston, MA	1997-1998
Research Associate and Lecturer, Harvard School of Public Health, Boston, MA	1991-1997
Research Fellow, Kennedy School of Government, Harvard University, MA	1981-1991
Senior Scientist/ Manager at Env. Consulting firms ERT and AER, MA	1977-1981
Assistant Professor, Applied Statistics, Middle East Technical University, Turkey	1976-1977

SELECTED AWARDS AND HONORS:

- Recipient: ORD Special Accomplishment Team Award for the CCA Team in 2004
- Recipient: Bronze Medal, by EPA/ORD for Commendable Service of the Assessment Factors Workgroup in 2003
- Recipient: ORD Award for Exceptional/Outstanding ORD Technical Assistance to the Regions or Program Office in 2002
- Recipient: ORD Superior Accomplishment Recognition Award for Applying the SHEDS Model to Assess Children's Exposure to Arsenic and Chromium from CCA-Treated Wood in 2002
- Recipient, NERL/HEASD Team Award for technical contributions to the PM Criteria Document Exposure Chapter in 2001
- Recipient, ORD Award for Scientific and Technical Achievement for the Development of a Novel Model to Study Children's Residential Exposure to Pesticides in 2000

INVITED LECTURES/SYMPOSIA (Selected presentations from over 20 in the last 5 years):

1. Modeling Environmental Exposures to Particulate Matter and Pesticides. Presented at the London School of Hygiene and Tropical Medicine. (1999)
2. Framework for Model Evaluation and Validation. Presented at the Aggregate Exposure assessment Model Evaluation and refinement Workshop. Baltimore, MD. (1999)
3. Modeling of Personal and Population Exposures to Urban Air Toxics. Presented at the Workshop on the Role of Human Exposure Assessment in Determining Health Impacts of Urban Air Toxics, Houston, TX. (2000).
4. Modeling Exposures to Pesticides: Approaches and Modeling Needs. Presented at the Exposure of Children to Pesticides Workshop. Berlin, Germany. (2001)

5. Assessing Children's Exposures: Issues, Approaches and Plans. Presented at the Annual ILSI Risk Science Institute Meeting. Cancun, Mexico. (2002)
6. PM Exposure Modeling: Concepts and Approaches. Seminar presentation at University of Texas, Houston, TX. (2002)
7. Aggregate Risk Considerations in Route-to-Route Extrapolation. Presented at the Regions/ORD Workshop on Inhalation Risk Assessment. Washington, DC. (2003)
8. Strengths and Limitations of the SHEDS-Wood Model. Presentation for the FIFRA Scientific Advisory Panel on EPA/OPP's Draft Probabilistic Exposure Risk Assessment for Children who Contact CCA-Treated Wood. (2003).
9. Overview of Exposure Factors research at EPA ORD NERL. Presentation at the EPA Exposure Factors Peer- Review Involvement Workshop. Washington, DC. (2004).
10. Human Exposure Modeling for Air Toxics Using SHEDS. Presentation at the EPA/R/S/L Modelers Workshop. Boston, MA. (2004)

11.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

- Participant, Joint Israel/EPA Comparative Risk meeting. Tel Aviv, Israel. (2000)
- President, International Society of Exposure Analysis. (2001-2002)
- Past President, International Society of Exposure Analysis. (2002-2003)
- Member, WHO IPCS Workgroup on Harmonization of Exposure Assessment Models (2001-2004)
- Member, WHO IPCS Workgroup on Uncertainty in Exposure Assessment (2004- present)
- Member, Scientific Organizing Committee, First International Conference of Environmental Exposure and Health, Oct 5-7, 2005. Atlanta, GA. (2004-present)
- Member, Scientific Organizing Committee, Joint Conference of the International Society of Exposure Analysis and the International Society for Environmental Epidemiology, Sept. 2-6, 2006 in Paris, France. (2004-present)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

- Co-Chair, Assessment Factors Workgroup of EPA's Information Quality Guidelines Development Program. (2001-2002)
- Co-Chair, Exposure to Chemical Agents Workgroup of the Planned Interagency National Children's Study (NCS). (2001-2004).
- Member, External Advisory Committee of the California Air Resources Board for the Study on the Health Benefits of Air Quality. (2003-present).
- Member, Integrating Scientific Information Workgroup of EPA. (2004-present).
- Co-Chair, Probabilistic Exposure and Risk Analysis Workgroup of EPA. (2004-present).
- Member, Steering Committee of the North Carolina Birth Cohort Study. (2004-present).

PUBLICATIONS (17 published in the last 5 years and from an overall total of over 50 papers and 2 book chapters):

1. Lee, KY., Vallarino, J., Dumyahn, T., Özkaynak H., and Spengler, JD. Ozone decay rates in residences. **Journal of the Air & Waste Management Association**, 49:1238-1244, 1999.
2. Özkaynak H, Exposure Assessment. **In: Air Pollution and Health**. Holgate, Koren, Samet and Maynard Eds. Academic Press, London UK. 149-162, 1999.

3. Geyh, AH., Xue, J., Özkaynak H., and Spengler, JD. The Harvard southern California chronic Ozone exposure study: assessing exposure to ozone of grade school age children in two southern California communities. *Environmental Health Perspectives*, 108(3):265-270, 2000.
4. Zartarian V.G, Özkaynak H, Burke J M., Zufall M J, Rigas M L, and. Furtaw E.J,. A modeling framework for estimating children's residential exposure and dose to chlorpyrifos via dermal residue contact and non-dietary ingestion, *Environmental Health Perspectives*, 108:589-594, 2000.
5. Sun Li., Zidek JV, Lee, ND and Özkaynak H. Interpolating Vancouver's daily ambient PM₁₀ field. *Environmetrics*, 11: 651-663, 2000.
6. Burke, JM, Zufall MJ and Özkaynak H. A population exposure model for particulate matter: case study results for PM_{2.5} in Philadelphia, PA, *Journal of Exposure Analysis and Environmental Epidemiology*, 11: 470-489, 2001.
7. Buck, RJ, Özkaynak H, Xue J, Zartarian VG and Hammerstrom K. Modeled estimates of chlorpyrifos exposure and dose for the Minnesota and Arizona NHEXAS populations. *Journal of Exposure Analysis and Environmental Epidemiology*, 11: 253-268, 2001.
8. Zidek, J, Sun, L, Le N and Özkaynak H. Contending with space-time interaction in the spatial prediction of pollution: Vancouver's hourly ambient PM₁₀ field. *Environmetrics*, 13: 1-19, 2002.
9. Lee, K, Xue, J, Geyh, AS, Özkaynak H, Leaderer, B, Weschler C and Spengler, JD. Nitrous acid , nitrogen dioxide, and ozone concentrations in residential environments, *Environmental Health Perspectives*, 110:145-149, 2002.
10. Noble, C. A.; Mukerjee, S.; Gonzales, M.; Rodes, C. E.; Lawless, P. A.; Natarajan, S.; Myers, E. A.; Norris, G. A.; Smith, L. A.; Özkaynak, H.; Neas, L. M. (2003). Continuous measurement of fine and ultrafine particulate matter, criteria pollutants and meteorological conditions in urban El Paso, Texas. *Atmospheric Environment*,. 37(6):827-840, 2003.
11. Lee, K., Parkhurst, W.J., Xue, J., Özkaynak, H., Neuberger, D., Spengler, J.D., Outdoor/Indoor/personal ozone exposures of children in Nashville, Tennessee. *Journal of the Air & Waste Management Association*, 54:352-359, 2004.
12. Wilson, N.K., Chuang, J.C., Iachan, R., Lyu, C., Gordon, S.M., Morgan, M.K., Özkaynak, H., Sheldon, L.S., Design and sampling methodology for a large study of preschool children's aggregate exposures to persistent organic pollutants in their everyday environments. *Journal of Exposure Analysis and Environmental Epidemiology*, 14: 260-274, 2004.
13. Mukerjee, S., Norris, G.A., Smith, L.A., Noble, C.A., Neas, L.M., Özkaynak, H., Gonzales, M. Receptor model comparisons and wind direction analyses of volatile organic compounds and submicrometer particles in an arid, binational, urban airshed. *Environmental Science and Technology*, 38: 2317-2327, 2004.
14. Mukerjee, S., Smith, L.A., Norris, G.A., Morandi, M.T., Gonzales, M., Noble, C.A., Neas, L.M., Özkaynak, H. Method comparison between passive air samplers and continuous monitors for volatile organic compounds and NO₂ in El Paso, Texas, USA. *Journal of the Air & Waste Management Association*,. 54: 307-319, 2004.
15. Xue J, McCurdy T, Spengler JD and Özkaynak H. Intra- and inter-individual activity considerations in human exposure modeling. *Journal of Exposure Analysis and Environmental Epidemiology*, 14: 222-233, 2004.
16. Hore, P., Robson, M., Freeman, N., Zhang, J., Wartenberg, D., Özkaynak, H., Tolve, N., Sheldon, L., Needham, L., Barr, D., Liou, P. Chlorpyrifos accumulation patterns for child accessible surfaces and objects and urinary metabolite excretion by children for two-week after crack-and-crevice application. *Environmental Health Perspectives*, (in press)
17. Xue, J., Liu, S.V., Özkaynak H., Spengler, J.D. Parameter evaluation and model validation of ozone exposure assessment using Harvard southern California chronic exposure study data.

18

18. **Journal of the Air & Waste Management Association**, (submitted)

BIOGRAPHICAL SKETCH**NAME:** Susan Perlin**POSITION TITLE:** Senior EnvironmentalHealth Scientist**EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
George Mason University	BS	1971	Biology
George Mason University	MS	1973	Biology
Johns Hopkins University School of Public Health and Hygiene	ScD	1984	Toxicology and Environmental Health Sciences

PROFESSIONAL EXPERIENCE:

1995-Present Senior Environmental Health Scientist, National Center for Environmental Assessment

1988-1995 Senior Environmental Health Scientist, Office of Health Research, ORD

1984-1988 Environmental Health Scientist, Office of Policy Analysis

INVITED LECTURES/SYMPOSIA:

Perlin, S., Yuan, L., Wong, D., Chapman, R., (2002). Examination of Risk Factors for Respiratory Effects in Children: Use of National Health and Nutrition Examination Survey (NHANES-III) Respiratory Health Data and EPA Air Monitoring Data. Presented as a special seminar at the National Cancer Institute, Bethesda, MD.

Perlin, S. (2002). LANDSCAN USA: A High Resolution Population Distribution Database. Presented at the EPA GIS Workgroup Meeting, NYC, May, 2002.

Perlin, S. (2002). LANDSCAN USA: A Population Distribution Model for Improving our Knowledge of Where People Live and Work. Presented as the keynote speaker at the Maryland Governor's Commission on Environmental Justice and Sustainable Communities, Baltimore, MD, September 2002.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Affiliated Professor- Department of Geography and Earth Sciences, George Mason University

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Detail to US Geological Survey-Easter Region Geography Group 2003-2004

Conducted Research on issue of environmental justice in collaboration with Oak Ridge National Laboratory

EPA Representative for the NHANES Survey since 1988.

Established NCEA GIS User's Group

Leader NCEA Risk Characterization Team

Technical Review of Agency Documents

PUBLICATIONS:

Perlin, S.; Sexton, K.; Wong, D. (1999). An Examination of Race and Poverty for Populations Living Near Industrial Sources of Air Pollution. *J. Exp. Analysis & Env. Epi.* 9(1)29-48.

Perlin, S.; Sexton, K.; Wong, D.. (2001). Residential Proximity to Industrial Sources of Air Pollution: Interrelationships among Race, Poverty and Age. *J. Air & Waste Manage. Assoc.* 51:406-421

Perlin, S.; Sexton, K.; Wong, D.. (2001). People, Places, and Pollution: Environmental Justice Aspects of Residential Proximity to Industrial Sources of Air Pollution. *EM*, pages 21- 25. May 2001.

Chapman, R.S.; Hadden, W.C; Perlin, S.A., 2003. Influences of Asthma and Household Environment on Lung Function of Children and Adolescents: The Third National Health and Nutrition Examination Survey. *Am. J. Epid.*, 158(2), 175-189.

Perlin, Susan. 2003. EPA Handbook for Use of Data from the National Health and Nutrition Examination Surveys (NHANES): A Goldmine of Data for Environmental Health Analyses. Washington, D.C., EPA/600/R-02/044.

Wong, D.W., L.L. Yuan, and S.A. Perlin, 2003. Methods for Estimating Air Quality Data for the Assessment of Children's Respiratory Health. Accepted by *J. Exp Analysis & Env. Epi.* 2003.

BIOGRAPHICAL SKETCH

NAME: Frederick W. Power
EDUCATION/TRAINING

POSITION TITLE: Research Physical Scientist

Institution	Degree	Year	Field of Study
University of Colorado, Boulder	B.S.	1961	Mathematics (Physics, Chemistry)
Johns Hopkins University (Evening School)	M.S..	1968	Numerical Science (Physics, Computer Science, Numerical Analysis)

PROFESSIONAL EXPERIENCE:

3/02 – present Research Physical Scientist U.S. EPA
 2/95 – 3/02 Computer Scientist, Anteon Corporation.
 10/89 – 2/95 Computer Scientist, Computer Sciences Corporation
 8/80 – 1/90 Owner, Omni Video Two Store Chain
 4/74 – 8/80 Casino Dealer, Roulette and Black Jack, MGM Grand (now Ballys)
 6/69 – 4/74 Director of Math and Physics, Environmental Research Corporation
 6/61 – 6/69 Staff Scientist, Johns Hopkins University Applied Physics Laboratory

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

1. Developer of the Exposure Related Dose Estimating Model (ERDEM)
2. Project Officer for the Front End development of the ERDEM system
3. Developed enzyme inhibition modules for ERDEM.
4. Provided Modeling Support for MTBE, TCE, malathion, the carbamates, and other insecticides.

PUBLICATIONS AND PRESENTATIONS:

Michelson, S.; Okino, M.S. "The Virtual Patient: Capturing Patient Variability Using Biosimulation," *Preclinica*, **2**, 33-37, 2004.
 Rigas, M.L.; Okino, M.S.; Quackenboss, J.J. "Use of a pharmacokinetic model to assess chlorpyrifos exposure and dose in children based on urinary biomarker measurements," *Toxicological Sciences*, **61**, 374-381, 2001.
 Stokes, C.L.; Lewis, A.K.; Subramanian, K.; Klinke II, D.J.; Okino, M.S.; Edelman, J.M. "A computer model of chrnoic asthma with applicaiton to clinical studies: Example of treatment of exercise-induced asthma." *Journal of Allergy and Clinical Immunology*, **107**(5), 933, 2001.
Okino, M.S.; Snurr, R.Q.; Kung, H.H.; Ochs, J.E.; Mavrovouniotis, M.L. "A Consistent Correlation Approach to Single File Diffusion with Reaction," *Journal of Chemical Physics*, **111**, 2210-2221, 1999.
Okino, M.S.; Mavrovouniotis, M.L. "Simplification of Chemical Reaction Systems by Time-Scale Analysis," *Chemical Engineering Communications*, **176**, 115-131, 1999.

BIOGRAPHICAL SKETCH

NAME: R. Julian Preston

POSITION TITLE: Division Director

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Peterhouse, Cambridge University (UK)	BA	1960-63	Genetics –Hons.
Cambridge University (UK)	MA	1967	
Reading University (UK)	PhD	1970	Radiation Genetics

PROFESSIONAL EXPERIENCE:

1999-Present Director, Environmental Carcinogenesis Division, U.S. Environmental Protection Agency, RTP, NC.

1995-1999 Senior Scientific Advisor, Chemical Industry Institute of Toxicology, RTP, NC.

1992-Present Adjunct Professor, Department of Toxicology, North Carolina State University, Raleigh, NC.

1992-Present Adjunct Professor, Integrated Toxicology Program, Duke University, Durham, NC.

1991-1995 Department Head, Cellular and Molecular Toxicology, Chemical Industry Institute of Toxicology, RTP, NC.

1984-1991 Section Head, Biology Division, Oak Ridge National Laboratory, Oak Ridge, TN.

1978-1991 Senior Research Staff Member, Biology Division, Oak Ridge, TN.

1977-1982 Associate Director, University of Tennessee Biomedical Graduate School, Oak Ridge, TN.

1970-1991 Adjunct Professor, University of Tennessee Biomedical Graduate School, Oak Ridge, TN.

1970-1978 Research Staff Member, Biology Division, Oak Ridge National Laboratory, Oak Ridge, TN.

1963-1970 Staff Member, Medical Research Council Radiobiology Unit, Harwell, Didcot Oxfordshire, England Harwell, Didcot.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Editorial Board of "Mutation Research" –1976-Present; Associate Editor, Environmental and Molecular Mutagenesis –1989-Present; Associate Editor, Cell Biology and Toxicology –1990; Editorial Board, Analytical Biochemistry –1990; Member, Committee I International Commission on Radiological Protection, 1993-Present; Member, United States Delegation to the United Nations Scientific Committee on the Effects of Atomic Radiation - 1997-Present; Member of Board, National Council on Radiation and Measurements –1999-Present.

SELECTED AWARDS AND HONORS:

Lauriston S. Taylor Lecture, NCRP –2002

EPA Bronze Medal – 2004

INVITED LECTURES/SYMPOSIA (Selected from the last 3 years):

2002 Award Lecture, NCRP Annual Meeting, Washington, DC

2003 Invited Speaker (Debate) British Nuclear Fuels Annual Meeting, Oxford, England

2003 Invited Symposium Speaker, Environmental Mutagen Society, Miami, FL

2003 Invited Symposium Speaker, Society of Toxicology, Salt Lake City, UT

2004 Invited Symposium Speaker, Society of Toxicology, Baltimore, MD

2004 Invited Symposium Speaker, International Congress of Toxicology, Tampere, Finland

2004 Invited Symposium Speaker, AAAS Meeting, Seattle, WA

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY (Selected):

- 1997-1999 Member, Committee on Arsenic Carcinogenicity, National Research Council, National Academy of Sciences.
- 2000- Provide Review of About 10 Risk Assessment Documents for NCEA.
- 2001-2004 Co-Chair Technical Qualification Board, NHEERL
- 2002-2003 Input and Review to “Supplemental Guidance for Draft Proposed Guidelines for Carcinogen Risk Assessment”
- 2002- Chair, National Academy of Sciences Committee to Assess the Scientific Information for the Radiation Exposure, Screening and Education Program
- 2004- Representative of EPA to National Cancer Advisory Board
- 2002- Chair, Capital Equipment Committee, NHEERL
- 2003- Member of EPA’s Genomics Task Force.
- 2004- Co-Chair, EPA Training Task Group, Genomics Technical Framework and Training Committee
- 2004- Member, Steering Committee, Genomics Technical Framework and Training Committee

PUBLICATIONS (Selected from a total of 35 published in last 5 years and overall total of 170 papers):

1. R.J. Preston, Cytogenetic Effects of Ethylene Oxide, With An Emphasis on Population Monitoring, *Critical Reviews in Toxicology*, 29:263-282, 1999.
2. R. Julian Preston, Recent Advances in Genetic Toxicology and Their Relevance to Cancer Risk Assessment, *Inhalation Toxicology*, 11:555-557, 1999.
3. R.J. Preston, Chromosomal Changes. In *Short/Medium Term Carcinogenicity Tests and Genetic and Related Effects*. IARC Monograph No. 146. International Agency for Research on Cancer, Lyon, pp 395-408, 1999.
4. R.J.M. Fry, U. Hagen, J. Kummernehr, R.J. Preston. Radiation. In: *Toxicology*, (Eds. Marquardt, H. Schafer, S.G. McClellan, R.O., and Welsch. F.) Academic Press, New York, pp. 937-958, 1999.
5. J.I. Everitt and R.J. Preston, Carcinogenicity and Genotoxicity of Inhaled Substances. In: *Toxicology of the Lung*, 3rd Edition (Eds. D.E. Gardner, J.D. Crapo and R.O. McClellan), Taylor and Francis, Philadelphia, pp. 269-288, 1999.
6. T. Allio, E.M. Donner and R.J. Preston, A Comparison of The Roles of p53 Mutation and AraC Inhibition in The Enhancement of Bleomycin-Induced Chromatid Aberrations in Mouse and Human Cells, *Mutat. Res.* 447:227-237, 2000.
7. T. Allio and R.J. Preston, Increased Sensitivity to Chromatid Aberration Induction By Bleomycin and Neocarzinostatin Results from Alterations in A DNA Damage Response Pathway, *Mutat. Res.* 453:5-15, 2000.
8. R. Julian Preston, Response to Klaunig, J.E. et al, Epigenetic Mechanisms of Chemical Carcinogenesis: Commentary, *Human and Exper. Tox.* 19:569-570, 2000.
9. R.J. Preston, Chapter 16. Genetic Toxicology In: *Biochemical Toxicology* (Eds. E. Hodgson and R. Smart). Wiley InterScience, pp. 397-413, 2001.
10. R. Julian Preston and G.R. Hoffmann, Genetic Toxicology, In, Casarett and Doull’s *Toxicology* (ed. C.D. Klaassen) McGraw Hill: York, PA., pp. 321-350, 2001.
11. R. Julian Preston, Summary and Conclusions for 21st Century Biodosimetry: Quantifying The Past And Predicting The Future, *Radiation Protection Dosimetry*, 97:75-77, 2001.
12. R. Julian Preston, Chapter 6. Chromosome Aberrations Induced by Low Doses and Low-Dose Rates of Ionizing Radiation, *NCRP Report*, 136:50-80, 2001.
13. R. Julian Preston, Quantitation of Molecular Endpoints for The Dose-Response Component of Cancer Risk Assessment, *Toxicologic Path.* 30:112-116, 2002.
14. R. Julian Preston (author) Operational Radiation Safety Program for Astronauts in Low-Earth Orbit: A Basic Framework. *NCRP Report no.* 142, NCRP: Bethesda MD, 2002.
15. R. Julian Preston, Mentors Are Made, Not Born, *The Scientist*, 16:54-55, 2002.
16. R. Julian Preston, Molecular Epidemiology: Potential Impacts on The Assessment of Public Health, *Mutation Research*, 543:121-124, 2003.

17. R.B. Conolly, J.S. Kimbell, D.B. Janszen, P.M. Schlosser, D. Kalisak, R.J. Preston, and F.J. Miller, Biologically Motivated Computational Modeling of Formaldehyde Carcinogenicity in The F344 Rat, *Toxicol. Sci.*, 75:432-447, 2003.
18. C.N. Coleman, W.F. Blakely, J.R. Fike, T.J. Macvittie, N.F. Metting, J.B. Mitchell, J.E. Moulder, R.J. Preston, T.M. Seed, H.B. Stone, P.J. Toffilon, R.S. Wong, Molecular and Cellular Biology of Moderate-Dose (1-10Gy) Radiation and Potential Mechanisms of Radiation Protection: Report of A Workshop at Bethesda, Maryland, December 17-18, 2001. *Radiat. Res.* 159:812-834, 2003.
19. R. Julian Preston, LNT Is The Best We Can Do – To-Day. *J. Radiol. Protect.* 23:263-268, 2003.
20. R. Julian Preston, 26th Lauriston S. Taylor Lecture: Developing Mechanistic Data for Incorporation Into Cancer and Genetic Risk Assessments: Old Problems and New Approaches. *Health Phys* 85:4-22, 2003.
21. R. Julian Preston (an author), Assessment of Scientific Information for The Radiation Exposure Screening and Education Program: Interim Report. National Research Council, Washington, DC, 2003.
22. R. Julian Preston (author), Presidential Report on Radiation Protection Advice: Screening of Humans for Security Purposes Using Ionizing Radiation Scanning Systems. National Council on Radiation Protection, Bethesda, MD, 2003.
23. D.J. Brenner, R. Doll, D.T. Goodhead, E.J. Hall, C.E. Land, J.B. Little, J.H. Lubin, D.L. Preston, R.J. Preston, J.S. Puskin, E. Ron, R.K. Sachs, J.M. Samet, R.B. Setlow, and M. Zaider, Cancer Risks Attributable To Low Doses of Ionizing Radiation: Assessing What We Really Know. *PNAS* 100:24, 13761-13766, 2003.
24. L. Recio, M. Donner, D. Abernethy, L. Pluta, AM Steen, B.A. Wong, A. James, R.J. Preston. In Vivo Mutagenicity and Mutation Spectrum in The Bone Marrow and Testes of B6C3F1 LacI Transgenic Mice Following Inhalation Exposure to Ethylene Oxide. *Mutagenesis* 19(3), 215-222, 2004.
25. R.J. Preston. Radiation Biology: Concepts for Radiation Protection. *Health Phys.* 87:3-14, 2004.
26. R.B. Conolly, J.S. Kimbell, D. Janszen, P.M. Schlosser, D. Kalisak, J. Preston, F.J. Miller. Human Respiratory Tract Cancer Risks of Inhaled Formaldehyde: Dose-Response Predictions Derived from Biologically-Motivated Computational Modeling of A Combined Rodent and Human Dataset. *Toxicol Sci* 82, 279-296, 2004.
27. R. Julian Preston. Children As A Sensitive Subpopulation for The Risk Assessment Process. *Toxicol Appl Pharm* 199:132-141, 2004.
28. R. Julian Preston. Bystander Effects, Genomic Instability, Adaptive Response and Cancer Risk Assessment for Radiation and Chemical Exposures. *Toxicol Appl Pharm* (In Press). 2004.
29. William W. Au and R. Julian Preston. Population Monitoring for Assessment of Health Concerns Using Biomarkers. In: Principles of Genetic Toxicology (Eds. M.A. Carballo & M. Mudry) (In Press), 2004.
30. R. Julian Preston. Mechanistic Data and Cancer Risk Assessment: The Need for Quantitative Molecular Endpoints. *Env Mol Mut* (In Press), 2004.

BIOGRAPHICAL SKETCH**NAME: Resha M. Putzrath****POSITION TITLE: Health Science Coordinator****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
Smith College	A.B.	1967-1971	Physics
University of Rochester School of Medicine and Dentistry	M.S.	1971-1974	Biophysics
Harvard Medical School	Ph.D.	1974-1978	Biophysics
Harvard School of Public Health	Research Fellow	1977-1979	Physiology
	Fellow	1979-1981	Interdisciplinary Programs in Health

PROFESSIONAL EXPERIENCE:

2003 to Present	Health Science Coordinator, Risk Assessment Forum, NCEA, ORD, EPA
1998 to Present	Lecturer, Whiting School of Engineering, Johns Hopkins University
1994 to 2003	Principal, Georgetown Risk Group
1995 to 2000	Associate, Department of Environmental Health Sciences, School of Hygiene and Public Health, Johns Hopkins University
1993 to 1994	Principal, Step 5 Corporation
1991 to 1995	Manager of Environmental Program, Organization Resources Counselors
1986 to 1991	Project Manager, Environ Corporation Senior Associate, Environ Corporation
1982 to 1986	Faculty Member, Toxicology and Pharmacology, FAES, NIH
1982 to 1983	Associate Scientist, National Research Council/National Academies
1981 to 1982	Consultant, Hazardous Waste Enforcement Task Force, EPA

SELECTED PROFESSIONAL SOCIETIES & PUBLICATION BOARDS:**Society for Risk Analysis:**

Chair, Best Paper Committee, 2004

Annual Meeting Committee, 1999, 2000, 2002, 2004

Society of Toxicology:

Awards Committee, Risk Assessment Specialty Section, 1997, 1998, 2001

National Capital Area Chapter:

2004, Election Committee.

American Association for the Advancement of Science:

Member (Chair in 2002), Selection Committee, Risk Policy Science and Engineering Fellowship Program, 2000-2002

Member, Selection Committee, Congressional Science and Engineering Fellowship Program, 1999

Editorial and Review Activities:Guest Editor, *Comments on Toxicology*, 1999Reviewer, *Ecotoxicology and Environmental Safety*, 2001- PresentReviewer, *International Journal of Toxicology*, 1999 - Present

FF

Reviewer, *Environmental Health Perspectives*, 1997 - Present
Reviewer, *Risk Analysis*, 1993 - Present

AWARDS AND HONORS:

Fellow, Society for Risk Analysis, elected 2003
Diplomate, American Board of Toxicology, 1986-2006

SELECTED INVITED LECTURES/SYMPOSIA:

Practical Issues in Peer Review. Presented at the Society for Risk Analysis Symposium, "Conflict, Consensus, and Credibility: A Forum on Regulatory Peer Review," May 29, 2002.

Evaluating Human Health Risks: Mixtures and Risk Estimation. U.S. Army Corps of Engineers Workshop on Advancing the State of the Art of Analyzing Risks and Benefits for Dredged Materials' Management, November 1, 2001.

The Challenges of Combining Data for Evaluating Mixtures. Current Controversies in Risk Analysis, a Workshop of the Society for Risk Analysis, June 18, 2001.

Risks between the LOAEL and the RfD/RfC: A Minimalist's Approach. U.S. EPA Risk Assessment Forum, September 28, 2000.

Mixtures Models: Simplicity versus Complexity. Office of Risk Assessment and Cost Benefit Analysis, U.S. Department of Agriculture, October 11, 2000.

Chemical Risk Assessment in the U.S.: Time for a New Paradigm? Society for Risk Analysis - Japan, Tokyo, Japan, September 6, 1999.

ASSISTANCE/LEADERSHIP TO THE SCIENTIFIC COMMUNITY:

Member, Added Ingredients Review Committee, Life Sciences Research Office (2001-2003)
Expert Reviewer, ATSDR Interaction Profiles (2001); Technical Peer Review Team,

Massachusetts Military Reservation (1999);

Member, EPA Expert Peer Consultation on Approaches to Quantifying Health Risks For Threshold or Nonlinear Effects at Low Dose (2000)

Member, EPA Expert Peer Consultation on Guidance for Conducting Health Risk Assessments of Chemical Mixtures (1999)

Member, EPA Expert Peer Consultation on Risk Characterization Guidance and Case Studies (1999)

Member, EPA Expert Peer Consultation on Relationship of Exposure Duration and Toxicity (1998) on threshold or nonlinear effects at low dose (2000); chemical mixtures (1999); risk characterization guidance (1999)

Organizer and Presenter: Society for Risk Analysis: "Conflict, Consensus, and Credibility: A Forum on Regulatory Peer Review" (2002)

Organizer and Presenter: Society for Risk Analysis: "Current Controversies in Risk Analysis" (2001)

Presenter: U.S. Army Corps of Engineers, "Evaluating Human Health Risks: Mixtures and Risk Estimation."(2001)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY

Member, Technical Quality Board (reviews technical qualifications of scientist nominated for promotion (2004- Present)

Member, workgroup examining scientific basis for UFs for the Science Policy Council (2004- Present)

Participant, ORD Managers' Summit August, 2004

Organizer and Presenter of Workshop on Cancer Guidelines (Practical Applications), 2005
Annual Toxicology and Risk Assessment Conference

Organizer and Presenter of Workshop on Overview of Cancer Risk Assessment Methods, 2004
Annual Toxicology and Risk Assessment Conference

Presenter, "Risk Assessment Forum Update, 2004 Regional Risk Assessors Conference, 2004

SELECTED, RECENT PUBLICATIONS

1. Author and chapter editor, *An Examination of EPA Risk Assessment Principles and Practices*, Office of Science Advisor, USEPA, 2004
2. Charnley, G. and Putzrath, R.M. Children's Health, Susceptibility, and Regulatory Approaches to Reducing Risks from Chemical Carcinogens. *Environmental Health Perspectives*.109:187-192, 2001.
3. Putzrath, R.M. Inaccurate Models for Mixtures. *Environmental Health Perspectives*. 109:A64, 2001.
4. Putzrath, R.M. Reducing Uncertainty of Risk Estimates for Mixtures of Chemicals within Regulatory Constraints. *Regulatory Toxicology and Pharmacology*. 1:44-52, 2000.
5. Putzrath, R.M. and Wilson, J.D. Fundamentals of Health Risk Assessment. Use, Derivation, Validity and Limitations of Safety Indices. *Risk Analysis* 19:231-247, 1999.

BIOGRAPHICAL SKETCH

NAME **James J. Quackenboss**POSITION TITLE **Environmental Scientist**

EDUCATION

INSTITUTION AND LOCATION	DEGREE	YEAR	FIELD OF STUDY
University of Wisconsin, Madison, WI	B.S.	1980	Anthropology
University of Wisconsin, Madison, WI	M.S.	1984	Preventive Medicine- Epidemiology

RESEARCH AND PROFESSIONAL EXPERIENCE:

Research Assistant, Dept. of Preventive Medicine, University of Wisconsin (1981 to 1982)

Project Specialist, Dept. of Preventive Medicine and Institute for Environmental Studies, University of Wisconsin (1982 to 1985)

Research Specialist, Dept. of Internal Medicine, Respiratory Sciences Center, University of Arizona (1985 to 1991)

Environmental Scientist, U.S. E.P.A., National Exposure Research Laboratory, Human Exposure and Atmospheric Sciences Division, Human Exposure Research Branch (1991 to Present)

SELECTED AWARDS AND HONORS:

- Bronze Medal, US EPA Honor Award. for Assessment Factors Workgroup, 2002

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Interagency Coordinating Committee (ICC), National Children's Study. 2002-present

Interim chair for US EPA. Interagency Coordinating Committee. National Children's Study, Nov. 2003-Feb.2004, Nov. 2004-present.

Interagency Coordinating Committee liaison to the Exposure to Chemical Agents Working Group. National Children's Study, 2002-present.

Principal EPA collaborator for a National Human Exposure Assessment Survey (NHEXAS) scoping/demonstration project; design of a Children's Pesticide Exposure Study with the NHEXAS Consortia (Research Triangle Institute/Environmental and Occupational Health Sciences Institute) and the Minnesota Department of Health (1995-2001).

SELECTED PUBLICATIONS:

Clayton, C.A., Pellizzari, E.D., Whitmore, R.W. Perritt, R.L. and Quackenboss, J.J. National Human Exposure Assessment Survey (NHEXAS): Distributions and Associations of Lead, Arsenic and Volatile Organic Compounds in EPA Region 5. J Expo Anal Environ Epidemiol 9(5):381-392, 1999.

Whitmore, R.W., Byron, M.Z., Clayton, C.A., Thomas K.W., Zelon H.S., Pellizzari E.D., and Quackenboss.J.J..Sampling Design, Response Rates and Nonresponse Compensation for the National Human Exposure Assessment Survey (NHEXAS) in EPA Region 5. J Expo Anal Environ Epidemiol 9(5):369-380, 1999.

Freeman, N.C.G., Lioy P.J., Pellizzari, E.D., Zelon, H., Thomas, K.W., Clayton, C.A., and Quackenboss, J.J. Responses to the Region 5 NHEXAS Time/Activity Diary. J Expo Anal Environ Epidemiol 9(5):414-426, 1999.



- Adgate JL, Kukowski A, Stroebel C, Shubat PJ, Morrell S, Quackenboss JJ, Whitmore RW, Sexton K. Pesticide Storage and Use Patterns in Minnesota Households with Children. *J Expo Anal Environ Epidemiol.* 10(2):159-67, 2000.
- Quackenboss JJ, Pellizzari ED, Shubat P, Whitmore RW, Adgate JL, Thomas KW, Freeman NCG, Stroebel C, Liroy PJ, Clayton CA, Sexton K. Design Strategy for Assessing Multi-Pathway Exposure for Children: The Minnesota Children's Pesticide Exposure Study (MNCPEs). *J Expo Anal Environ Epidemiol.* 10:145-158, 2000.
- Liroy PJ, Edwards RD, Freeman N, Gurunathan S, Pellizzari E, Adgate JL, Quackenboss JJ, Sexton K. House dust levels of selected insecticides and a herbicide measured by the EL and LWW samplers and comparisons to hand rinses and urine metabolites. *J Expo Anal Environ Epidemiol.* 10(4):327-340, 2000.
- Adgate JL, Clayton CA, Quackenboss JJ, Thomas KW, Whitmore RW, Pellizzari ED, Liroy PJ, Shubat P, Stroebel C, Freeman NC, Sexton K. Measurement of multi-pollutant and multi-pathway exposures in a probability-based sample of children: practical strategies for effective field studies. *J Expo Anal Environ Epidemiol.* 10:650-61, 2000.
- Rigas ML, Okino MS, Quackenboss JJ. Use of a pharmacokinetic model to assess chlorpyrifos exposure and dose in children, based on urinary biomarker measurements. *Toxicol Sci.* 61:374-381, 2001.
- Adgate JL, Barr DB, Clayton CA, Eberly LE, Freeman NCG, Liroy PJ, Needham LL, Pellizzari ED, Quackenboss JJ, Roy A, Sexton K. Measurement of children's exposure to pesticides: analysis of urinary metabolite levels in a probability-based sample. *Environ Health Perspect.* 109:583-590, 2001.
- Freeman NCG, Jiminez M, Reed KJ, Gurunthan S, Edwards RD, Roy A, Adgate JL, Pellizzari ED, Quackenboss JJ, Sexton K, Liroy PJ. Quantitative analysis of children's microactivity patterns: The Minnesota Children's Pesticide Exposure Study. *J Expo Anal Environ Epidemiol.* 11(6):501-509, 2001.
- Sexton K, Adgate JL, Eberly LE, Clayton CA, Whitmore RW, Pellizzari ED, Liroy PJ, Quackenboss JJ. Predicting children's short-term exposure to pesticides: results of a questionnaire screening approach. *Environ Health Perspect.* 110:123-128, 2003.
- Clayton C, Pellizzari E, Whitmore RW, Quackenboss JJ. Distributions, associations, and partial aggregate exposure of pesticides and polynuclear aromatic hydrocarbons in the Minnesota Children's Pesticide Exposure Study (MNCPEs). *J Expo Anal Environ Epidemiol.* 13(2):100-111, 2003.
- Pellizzari ED, Smith DJ, Clayton CA, Quackenboss JJ. Assessment of data quality for the NHEXAS - Part II: Minnesota children's pesticide exposure study (MNCPEs). *J Expo Anal Environ Epidemiol.* 13(6), 465-479, 2003.
- Clayton CA, Mosquin PL, Pellizzari ED, Quackenboss JJ. Limitations on the Uses of Multimedia Exposure Measurements for Multipathway Exposure Assessment—Part I: Handling Observations Below Detection Limits. *Quality Assurance*, in press, 2004.
- Clayton CA, Michael L, Pellizzari ED, Quackenboss JJ. Limitations on the Uses of Multimedia Exposure Measurements for Multipathway Exposure Assessment—Part II: Effects of Missing Data and Imprecision. *Quality Assurance*, in press, 2004.
- Mosquin P, Whitmore R, Suerken C, Quackenboss J. Population coverage and nonresponse bias in a large-scale human exposure study. *J Expo Anal Environ Epidemiol.*, in press, 2004.
- Whitmore RW, Pellizzari ED, Zelon HS, Michael LC, Quackenboss JJ. Population coverage and nonresponse bias in a large-scale human exposure study. *J Expo Anal Environ Epidemiol.*, in press, 2004.

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nonresponse bias in a large-scale human exposure study. *J Expo Anal Environ Epidemiol.*, in press, 2004.

BIOGRAPHICAL SKETCH**NAME:** James R. Rabinowitz**POSITION TITLE:** Research Physicist**EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
Alfred University, Alfred, New York	BA	1962	Physics
Uppsala University, Uppsala, Sweden	Certificate	1969	Quantum Chemistry and Biology
State University of New York at Buffalo, NY	PhD	1972	Physics
Harvard School of Public Health, Continuing Education, Boston, MA		1994	Analyzing Risk: Science, Assessment and Management

PROFESSIONAL EXPERIENCE:

2001-Present Research Physicist, MTB, ECD, NHEERL, ORD, EPA, RTP, NC.
 1995-2001 Research Physicist, BPB, ECD, NHEERL, ORD, EPA, RTP, NC.
 1991 -2000 Lecturer, Molecular Modeling Course, Department of Pharmaceutical Chemistry and Carolina Seminars Series, UNC, Chapel Hill, NC.
 1983 -1995 Research Physicist, CMB, GTD, HERL, ORD, EPA, RTP, NC.
 1980 -1983 Research Physicist, CBB, EBD, HERL, ORD, EPA, RTP, NC.
 1977 -1980 Research Scientist, Science and Technology Research Center, New York Institute of Technology, Dania, FL.
 1973 -1977 Associate Research Scientist, Institute of Environmental Medicine, New York University Medical Center, Tuxedo, NY.
 1973 -1974 Guest Scientist, Northeast Radiological Health Laboratory, BRH/HEW/USPS, Winchester, MA.
 1972 -1973 Postdoctoral Fellow, Institute of Environmental Medicine, New York University Medical Center, Tuxedo, NY.
 1968 -1972 Research Associate, Center for Theoretical Biology, State University of New York at Buffalo, Buffalo, NY.

PROFESSIONAL SOCIETIES:

American Association for the Advancement of Science
 International Society for Quantum Biology and Pharmacology
 American Chemical Society; Section on Chemical Toxicology; Section on Computers in Chemistry

INVITED LECTURES/SYMPOSIA:

Invited keynote speaker for the American Chemical Symposium -Molecular Modeling in Environmental Chemistry- sponsored by the Geological Chemistry of the ACS, with additional co-sponsors, Philadelphia, PA, 2004
 Organizer and Introductory speaker for ACS Symposium –Computational Toxicology- sponsored by the Chemical Toxicology Section. Cosponsored by the Computers in Chemistry Section, NY, NY –2003

Invited lecturer at the EURESCO Conference Computational Biophysics: Integrating Theoretical Physics and Biology, Biophysics from First Principles EURO Conference: From Electronic to the Mesoscale, European Science Foundation, San Feliu de Guixols, Spain –2002

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Executive Committee International Society for Quantum Biology and Pharmacology, 1999 – 2001
Reviewed research articles for Chemical Research in Toxicology, International Journal of Quantum Chemistry, Computational Chemistry, and Mutation Research
Reviewed Proposals for the Petroleum Research Fund, National Science Foundation and NIOSH
Consultant on Research Project at the University of Rhode Island, 1999 – Present.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member of the Supercomputer Working Group (The name changed during that time.), 1990 – Present.
Initiated the Agency's participation in the U.S.-Poland Maria Sklodowska-Curie Fund for Research through consultation with the Agency's Office of International Affairs
Member of the NHEERL Endocrine Disrupter Research Implementation Plan Team, 2000 – Present.
Represented the Agency at various Interagency discussion on Computational Toxicology, 2001 – Present.

PUBLICATIONS (January 1, 1998 to present):

1. SB Little, JR Rabinowitz, P Wei. and W Yang. A comparison of calculated and experimental geometries for crowded polycyclic aromatic hydrocarbons and their metabolites, *Polycyclic Aromatic Compounds* 14:53 – 61, 1999.
2. DM DeMarini, ML Shelton MJ Kohan, EE Hudgens, TE Kleindienst, LM Ball, DB Walsh, JG de Boer, L Lewis-Bevan, JR Rabinowitz, LD Claxton, J Lewtas. Mutagenicity in lung of big blue mice and induction of tandem-base substitutions in salmonella by the air pollutant peroxyacetyl nitrate (PAN): predicted formation of intrastrand cross-links, *Mutation Research* 457:41 – 55, 2000.
3. JR Rabinowitz, SB Little and KW Brown. Why does 5-methyl chrysene interact with DNA as both a planar and nonplanar polycyclic aromatic hydrocarbon, *International Journal of Quantum Chemistry* 88:99 – 106, 2001.
4. KW Brown, SB Little, JR Rabinowitz. Benzo[a]pyrene and Benzo[c]phenanthrene: The effect of structure on the binding of water molecules to the diol epoxides, *Chemical Research in Toxicology* 15:1069 – 1079, 2002.
5. JR Rabinowitz, SB Little, EM Gifford. Molecular Interaction Potentials for the development of structure activity relationships, *Environmental Toxicology and Chemistry*, 2003.

BIOGRAPHICAL SKETCHName: **Chris G. Saint**

Position:

Assistant Laboratory Director**EDUCATION/TRAINING**

Institution and Location	Degree	Year	Field of Study
Loughborough University, U.K.	B.Sc.	1979	Medicinal Chemistry
Loughborough University, U.K.	Ph.D.	1983	Biochemistry

PROFESSIONAL EXPERIENCE

- 1995-2004 Assistant Director, National Center for Environmental Research, Office of Research and Development, USEPA, Washington, DC
- 1986-1994 Environmental Scientist, Office of Modeling and Monitoring Systems, USEPA, Washington, DC
- 1984-1986 Assistant Professor, George Washington University Medical Center, Biochemistry Department, Washington, DC
- 1982-1984 Assistant Professor, Chemistry Department, Texas Christian University, Fort Worth, TX.
- 1978-1979 Chemist, Glaxo Pharmaceuticals, (UK) Ltd., Hertfordshire, UK.

AWARDS AND HONORS

- 2003 Recipient: Bronze Medal Development of New Research program on the influence of Tribal Practices on Toxic Exposures
- 2001 Recipient: Bronze Medal for the Development of the an Educational Video on Childhood Asthma

SELECTED PUBLICATIONS:

Mary Kay O'rourke, Patricia Sánchez Lizardi, Séumas P. Rogan, Natalie C Freeman, Amanda Aguirre, Christopher G. Saint. Pesticide Exposure and Creatinine Variation among Young Children. *Journal of Exposure Analysis and Environmental Epidemiology*, 10 (Supplement 6 Part 2): 672 - 681, 2000.

Allen D. Dearry, Gwen, W, Collman, Christopher G. Saint, Nigel Fields and Stephen Redd. Introduction: Building a Network of Research in Children's Environmental Health. *Environmental Health Perspectives*, 107 (Supplement 3): 391-392, 1999.

Ken Sexton, Michael Callahan, Elizabeth Bryan, Christopher G. Saint, and William P. Wood. Informed Decisions about Protecting and Promoting Public Health: Rationale for a National Human Exposure Assessment Survey. *Journal of Exposure Analysis and Environmental Epidemiology*, 5 (3): 233-256, 2000.

BIOGRAPHICAL SKETCH**NAME:** Reeder L. Sams II**POSITION TITLE:** Environmental Health Scientist**EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
West Virginia University, Morgantown, WV	B.S.	1987-1992	Pre-Veterinary Medicine
University of Arkansas for Medical Sciences, Little Rock, AR	Ph.D.	1992-1998	Interdisciplinary Toxicology

PROFESSIONAL EXPERIENCE :

Environmental Health Scientist, IRIS Staff, IO, NCEA, ORD, 2003 – Present
Environmental Protection Agency

Special Graduate Faculty Position: Division of Environmental 2004 - Present
Engineering University of North Carolina

Environmental Health Scientist, Epidemiology and Biomarkers 2001 - 2003
Branch, HSD, NHEERL, ORD, Environmental Protection Agency

Research Chemist, Biochemical Carcinogenesis, NCTR, 1998 - 2001
Food and Drug Administration

Research Assistant, Biochemical Carcinogenesis, NCTR, 1994 - 1998
Food and Drug Administration

SELECTED AWARDS AND HONORS :

2004 Environmental Protection Agency *On-the-Spot* Award
2004 Environmental Protection Agency *Time-Off* Award
2004 Environmental Protection Agency *On-the-Spot* Award
2003 Environmental Protection Agency Special Act *Team* Award
2003 Environmental Protection Agency *On-the-Spot* Award
2003 Environmental Protection Agency *On-the-Spot* Award
2002 Environmental Protection Agency *On-the-Spot* Award
2001 Recipient of American Society for Photobiology Travel Award
2001 Recipient of Food and Drug Administration, Outstanding Service Award

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Participant: Agency for Toxic Substances and Disease Registry, 1,4-Dioxane Minimum Risk Level Determination Workgroup

Research Advisor, Masters Student: Division of Environmental Engineering University of North Carolina (2004-present).

Participant: Science Fair Judge, Rivermill Charter School, Graham, NC (2001- present)

Participant: Department of Defense Exposure Biomarkers Consultation with EPA (2002)

Co-Chair: Ultraviolet Photobiology platform session, American Society for Photobiology annual meeting, Chicago, IL, (2001).

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY :

Chair: Office of Research and Development, Arsenic Health Assessment Review Group (2004-present)

Member: NHEERL Distinguished Lecture Series Committee (2003-present).

Member: Cancer Slope Factor Workgroup for Arsenic (2004-present)

Member: Office of Research and Development, PART Committee (2004-present)

Member: Office of Pesticides Program, Dimethyl Arsenic Acid MOA Workgroup, (2004-present)

Member: Technical Review Committee, Arsenic Subgroup (2003-present)

Member: Nanotechnology Grant Review Committee (2004-present)

PUBLICATIONS :

3. Sams, R.L. II, Blaydes, B., Warbritton, A., Lomax, L.G., Bucci, T.J., and K.B. Delclos. (2000) Differences in the response to oxidative stress and mutant frequency in CD (Sprague-Dawley) and Fischer 344 rats due to an induced inflammatory response. *Environmental and Molecular Mutagenesis*, 35(4), 336-342.
4. Sams, R.L. II, Couch, L.H., Miller, B.J., Okerberg, C., Wamer, W.G., Beer, J.Z., and Howard, P.C. (2001) Basal cell proliferation rates in female SKH-1 mice treated with alpha- and beta-hydroxy acids. *Toxicology and Applied Pharmacology*, 175, 76-82.
5. Sams, R.L. II, Couch, L.H., Miller, B.J., Okerberg, C., Wamer, W.G., Beer, J.Z., and Howard, P.C. (2002) The effect of glycolic and salicylic acid on the induction of edema in SKH-1 mice due to simulated solar light. *Toxicology and Applied Pharmacology*, 184, 136-143.
4. Howard, P.C., Sams II, R.L., Bucher, J.R., Allaben, W.T. (2002) Phototoxicology and photocarcinogenesis at the U.S. Food and Drug Administration's National Center for Toxicological Research. *Journal of Food and Drug Analysis*, 10, 252-257.
5. Howard, P.C., Sams II, R.L., Dennis, D.A., and Wamer, W.G. (2002) Alpha-hydroxy acids: consideration of the biological effects and possible role in photocarcinogenesis. *Journal of Food and Drug Analysis*, 10, 258-261.
6. Gallagher, J., Sams II, R., Inmon, J., Gelein, R., Elder, A., Oberdorster, G., and Prahalad, A.K. (2003) Formation of 8-oxo-2'-deoxyguanosine, an oxidative adduct in the lung DNA of rats following sub-chronic inhalation of carbon black. *Toxicology and Applied Pharmacology*, 190, 224-31. .
7. Sams, R.L. II, Couch, L.H., Miller, B.J., Okerberg, C., and Howard, P.C. Spectral-based determination of edemal doses of light from multiple sources using female SKH-1 mice. *Accepted for publication in Regulatory Research Perspectives* (11/01/04).

BIOGRAPHICAL SKETCHNAME: Deborah Segal POSITION TITLE: Environmental Health Scientist**EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
George Washington University	BA	1987	Political Communications
The Johns Hopkins University School of Hygiene and Public Health	MEHS	2000	Toxicology

PROFESSIONAL EXPERIENCE:

October 2000 - present **Environmental Health Scientist**, Office of Research and Development, U.S. Environmental Protection Agency

June 1990 - August 1999 Communications Manager, American Psychological Association Science Directorate, Washington DC

June 1988-June 1990 Assistant Editor, Broadcasting Yearbook, Broadcasting Publications, Washington, DC

September 1987-June 1988 Publications Assistant, Magazine Group, Washington, DC

SELECTED AWARDS AND HONORS:

NIEHS Training Grant, 1997 - 2000
 PhD candidacy status in toxicology achieved at Johns Hopkins University, January 2000

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Organized and chaired a symposium session entitled, "The Use of Genomic and Molecular Applications in the Risk Assessment Process," EPA STAR Fellowship Conference, October 11, 2004.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member of writing team for ORD/NCER 2001 mission and goals.
 Member of STAR Graduate Fellowship Planning Committee, 2001, 2004
 Writer of numerous press releases, detailing the research accomplishments of EPA STAR grantees.
 Science Review Administrator (SRA) for more than 25 peer reviews for the EPA STAR extramural research program. SRA responsibilities include planning and chairing review panels.

BIOGRAPHICAL SKETCHNAME: Sherry G. SelevanPOSITION TITLE: Reproductive Epidemiologist**EDUCATION/TRAINING**

Location	Degree	Year	Field of Study
Ohio University	B.S.	1969	Chemistry
University of Cincinnati	M.S.	1974	Community Health
University of Cincinnati	Ph.D.	1980	Epidemiology and Environmental Health
CDC Epidemiologic Intelligence Service	EIS	1982-4	Epidemiology and Public Health

PROFESSIONAL EXPERIENCE :

Reproductive Epidemiologist	NCEA (formerly OHEA)/ORD/Environmental Protection Agency (EPA), February 1985-present.
Occupational Epidemiologist	National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control, Cincinnati, Ohio: 1974 - 85.
Visiting Scientist	Finnish Institute of Occupational Health, Helsinki, Finland: August - September, 1981 and August, 1983 - February, 1984.
Visiting Scholar	Department of Epidemiology, University of North Carolina at Chapel Hill: August, 1979 - August, 1980.
Occupational Health Advisor	Industrial Union Department, AFL-CIO, Washington, DC: February - September, 1972.

PROFESSIONAL SOCIETIES & PUBLICATION BOARDS:

- Society for Epidemiologic Research
- International Society for Environmental Epidemiology
- Commissioned Officers Association

SELECTED AWARDS AND HONORS:

- 2004, EPA Bronze Medal for Teplice Program Team
- 2002, Scientific and Technological Achievement Award (STAA, EPA), Honorable Mention.
- 2000, Scientific and Technological Achievement Award, Level III.

INVITED LECTURES/SYMPOSIA (from 2000 to present):

Title	Location	Date
Blood Lead Concentration and Puberty in US Girls	Mt Sinai University	June 2003
	George Washington University	Oct. 2003
	Texas AMU School of Rural Public Health	Nov. 2003
	NCEA seminar series	Jan. 2004
	ORD Women's History Month	Mar. 2004
	ORD-OPPTS seminar Series	Nov. 2004
National Children's Study	OCHP Advisory Committee	June 2002
	Workshop on Innovative Technology for Remote Collection of Data	May 2003
National Children's Study (cont.)	21st International Neurotoxicology Conference	Feb. 2004
	OCHP Advisory Committee	May 2004
	Day-Specific Probability of Conception Workshop	May 2004
Differences in Measurement of Puberty	Puberty Workshop, Chicago	Nov. 2003

Pre- and Postnatal Critical Windows of Exposure	EPA-DOD meeting on Risk Assessment, Dayton, Ohio	April 2003
Environmental Data Base Project	OCHP Advisory Committee	Mar. 2000
Sex Ratio and the Environment – are patterns changing?	University of Maryland, Baltimore	Nov. 2000
Longitudinal Study of Semen Quality After Intermittent Exposure to Air Pollution	Symposium at International Society for Environmental Epidemiology Meeting (ISEE)	Sept. 2002
Neurodevelopmental Effects of Environmental Exposures	Symposium at International Society for Environmental Epidemiology Meeting (ISEE)	Sept. 2001
WRAP UP: Where do we go from here? A U.S. Federal Perspective on Children's Health	Symposium at International Society for Environmental Epidemiology Meeting (ISEE)	Aug. 2000

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

- Planning a number of international workshops, for example:
 - The Role of Environmental Factors on the Onset and Progression of Puberty-Expert Panel Workshop, Chicago, Nov. 2003
 - Methods and Applications of Day-Specific Probabilities of Conception, May, 2004
 - Sampling for the National Children's Study, March 2004
- Reviewer for The New England Journal of Medicine, American Journal of Epidemiology, Epidemiology, Environmental Research, Teratology, Scandinavian Journal of Work, Health and the Environment, American Journal of Industrial Medicine, Reproductive Toxicology, Preventive Medicine, MIT Press, March of Dimes, Environmental Health Perspectives, Neurotoxicology, Ecotoxicology and Environmental Safety.
- Service on Advisory Boards:
 - AWWARF-EPA drinking water study at University of North Carolina, 1999 - present.
 - University of Cincinnati Diesel exposures and childhood asthma study, Advisory Board, 2001-2003 Chair, 2002-2003.
- Collaborative research efforts at the national/international level:
 - National: The National Children's Study 1999-present.
 - International:
 - The Teplice Project in the Czech Republic 1991- present. Collaborative projects on pregnancy outcome, semen measures and air pollution;
 - Collaboration with the Finish Institute of Occupational Health on anti-neoplastic drug exposure in nurses and pregnancy outcome, 1981-1985.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

- Currently serving on workgroup developing a framework for assessing risk in children.

SELECTED PUBLICATIONS (1999-2004):

- Buck GM, Lynch CD, Stanford JB, Sweeney AM, Schieve LA, Rockett JC, **Selevan SG**, Schrader SM. Prospective pregnancy study designs for assessing reproductive and developmental toxicants. Environ Health Perspect. 2004 112(1):79-86.
- **Selevan SG**, Rice DC, Hogan KA, Euling SY, Pfahles-Hutchens A, Bethel J. Blood lead concentration and delayed puberty in girls. N Engl J Med 348:1527-1536, 2003.
- Branum, AM, Collman, GW, Correa A, Keim, SA, Kessel W, Kimmel CA, Klebanoff, MA, Longnecker MP, Mendola P, Rigas M, **Selevan, SG**, Scheidt, PC, Schoendorf, K, Smith-Khuri E, Yeargin-Alsopp, M. The National Children's Study of Environmental Effects on Child Health and

Development. *Environ Health Perspect.* 2003 111(4):642-6.

- Mendola,P., **Selevan,S.G.**, Gutter,S., and Rice,D. (2002): Environmental factors associated with a spectrum of neurodevelopmental deficits. *Ment. Retard. Dev. Disabil. Res.Rev.*, 8:188-197.
- Hertz-Picciotto, I., Dostal, M., Dejmek, J., **Selevan,S.G.**, Wegienka, G., Gomez-Caminero, A., and Sram, R.J. (2002): Air pollution and distributions of lymphocyte immunophenotypes in cord and maternal blood at delivery. *Epidemiology*, 13:172-183.
- Bates,M.N.; **Selevan,S.G.**; Ellerbee,S.M.; Gartner,L.M. Reporting needs for studies of environmental chemicals in human milk. *J.Toxicol.Environ.Health* 2002; 65:1967-79.
- Perreault SD, Rubes J, Robbins WA, Evenson DP, **Selevan SG**. Evaluation of aneuploidy and DNA damage in human spermatozoa: applications in field studies. *Andrologia* 2000;32:247-254
- **Selevan SG**, Kimmel CA, Mendola P. (2000) Identifying critical windows of exposure for children's health. *Environ Health Perspect* 108 (Suppl 3):451-455.
- **Selevan, SG**, Kimmel CA, and Mendola P, Editors. Identifying Critical Windows of Exposure for Children's Health. *Environ. Health Perspect.*, 108 (Suppl. 3):449-597, 2000.
- **Selevan SG**, Borkovec L, Slott VL, Zudová Z, Rubeš J, Evenson DP, Perreault SD. (2000) Semen quality and reproductive health of young Czech men exposed to seasonal air pollution. *Environ Health Perspect* 108:887-894.
- Royster MO, Lobdell DT, Mendola R, Perreault SD, **Selevan SG**, Rothmann SA, Robbins WA. (2000) Evaluation of a container for collections and shipment of semen with potential uses in population-based, clinical, and occupational settings. *Journal of Andrology*. 21(3):478-484.
- Zinaman MJ, Brown CC, **Selevan SG**, and Clegg ED. (2000) Semen quality and human fertility: A prospective study with normal couples. *Journal of Andrology*. 21(1):145-53..
- Robbins WA, Rubes J, **Selevan SG**, Perreault (1999). Air pollution and sperm aneuploidy in health young men. *Environmental Epidemiology and Toxicology* 1(2): 125 - 131.
- Dejmek J, **Selevan SG**, Beneš I, Solansky I, Šrám R. (1999) Fetal growth and maternal exposure to particulate matter during pregnancy. *Environ Health Perspect* 107(6):475-80.
- Lemasters GK, Olsen DM, Yiin JH, Lockey JE, Shulka R, **Selevan SG**, Schrader SM, Toth GP, Evenson DP, Huszar GB (1999). Male reproductive effects of solvent and fuel exposure during aircraft maintenance. *Reproductive Toxicology* 13(3):155-66.

BIOGRAPHICAL SKETCH**NAME: R. Woodrow Setzer**
EDUCATION/TRAINING**POSITION TITLE: Mathematical Statistician**

Institution	Degree	Year	Field Of Study
University of Chicago, Chicago, Illinois	B.A.	1974	Mathematics
SUNY at Stony Brook, Stony Brook, New York	Ph.D.	1983	Population Biology
University of North Carolina, Chapel Hill	post-doc	1987	Biostatistics

PROFESSIONAL EXPERIENCE:

Mathematical Statistician, PKB, ETD, NHEERL, ORD EPA	2002 – Present
Mathematical Statistician, BRSS, NHEERL, ORD	1993 – 2002
Health Scientist, HERL, ORD EPA	1989 – 1993
Postdoctoral Fellow, DTD, HERL, ORD EPA	1987 – 1989
Postdoctoral Fellow, Department of Biostatistics, University of North Carolina, Chapel Hill, NC	1984 – 1987
Lecturer, Department of Ecology and Evolution, Stony Brook, NY	1984 State University of New York,

SELECTED AWARDS AND HONORS:

USEPA Silver Medal for the Organophosphate Cumulative Risk Assessment, 2003
 USEPA Bronze Medal for Commendable Service for Development of Benchmark Dose Software, 2004

INVITED LECTURES/SYMPOSIA:

8. Risk Assessment Using EPA Benchmark Dose Software Version 1.2. A full day workshop presented (with J. Gift) at the annual meeting of the Society for Risk Analysis, December 5, 1999
9. Calculating and Using Benchmark Doses (BMD). Federal/State Toxicology and Risk Analysis Committee, May 21–23, 2001.
10. Populations and PK Models. NERL/NHEERL Exposure to Dose Modeling Workshop, Research Triangle Park, NC, July 10–11, 2001.
11. Basic Statistical Analysis of Developmental Toxicity Studies, *in* Experimental Design and Biostatistics, a mini-education course at the annual meeting of the Teratology Society, Scottsdale, AZ, June 25, 2002.
12. Use of NOAEL, benchmark dose, and other models for human risk assessment of hormonally active substances. SCOPE/IUPAC International Symposium on Endocrine Active Substances, Yokohama, Japan, November 17–21, 2002.
13. Cumulative Risk Analysis for Organophosphorus Pesticides. Society of Toxicology, Salt Lake City, UT, March 9–13, 2003.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Adjunct Associate Professor, Department of Biostatistics, University of North Carolina at Chapel Hill School of Public Health, 2000 – present
 President-Elect, Research Triangle Chapter, Society for Risk Analysis, 2001 – 2002
 Chair, Research Triangle Chapter, Society for Risk Analysis, 2002 – 2003
 Affiliate Member of the Biostatistics and Epidemiological Methods Facility Core, University of North Carolina at Chapel Hill Center for Environmental Health and Susceptibility
 ILSI HESI Dose Dependent Transitions in Mechanisms of Toxicity Committee 2002 – 2003.



Participant, WHO/IPCS Author's Workshop on Dose-Response Modeling, Geneva, Switzerland, 2004

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Chair, Risk Assessment Forum Technical Panel, Benchmark Dose Technical Guidance Document, 1998
– present

Statistical Consultant/Collaborator with the National Center for Environmental Assessment for Development of EPA's Benchmark Dose Software. 1993 – present.

PUBLICATIONS (Selected from 46 peer-reviewed publications):

16. Scheerer JB, Xi L, Knapp GW, Setzer RW, Bigbee WL, and Fuscoe JC (1999) Quantification of Illegitimate V(D)J Recombinase-Mediated Mutations in Lymphocytes of Newborns and Adults. *Mutation Research*. 431: 291-303.
17. Hurst CH, DeVito MJ, Setzer RW, and Birnbaum LS (2000) Acute Administration of 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD) in Pregnant Long Evans Rats: Association of Measured Tissue Concentrations with Developmental Effects. *Toxicological Sciences* 53: 411-420.
18. Lau C, Andersen ME, Crawford-Brown D, Kavlock RJ, Kimmel CA, Knudsen TB, Muneoka K, Rogers JM, Setzer RW, Smith G, and Tyl R (2000). Evaluation of Biologically Based Dose-Response Modeling for Developmental Toxicity: A Workshop Report. *Regulatory Toxicology and Pharmacology*, 31: 190–199.
19. DeWoskin RS, Barone S Jr., Clewell HJ, Setzer RW (2001) Improving the development and use of biologically based dose response models (BBDR) in risk assessment. *Human and Ecological Risk Assessment*, 6: 1091 – 1120.
20. Lau C, Mole ML Copeland MF, Rogers JM, Kavlock RJ, Shuey DL, Cameron AM, Ellis DH, Logsdon TR, Merriman J, and Setzer RW (2001) Toward a biologically based dose-response model for developmental toxicity of 5-fluorouracil in the rat: Acquisition of experimental data. *Toxicological Sciences*, 59: 37–48.
21. Setzer RW, Lau C, Mole ML, Copeland FM, Rogers JM, and Kavlock RJ (2001). Toward a biologically-based dose-response model for developmental toxicity of 5-fluorouracil in the rat: a mathematical construct. *Toxicological Sciences*, 59: 49–58.
22. Shaughnessy DT, Setzer RW, and DeMarini DM (2001). Effect of the antimutagens vanillin and cinnamaldehyde on the spontaneous mutation spectra of Salmonella TA104. *Mutation Research*, 480–481: 55–69.
23. Wubah JA, Setzer RW, and Knudsen TB (2001). Exposure-disease continuum for 2-chloro-2'-deoxyadenosine (2CdA), a prototype ocular teratogen. 1. Dose-response analysis. *Teratology*, 64: 154–169.
24. Lau C, Narotsky MG, Lui D, Best D, Setzer RW, Mann PG, Wubah JA, and Knudsen, TB (2002). Exposure-disease continuum for 2-chloro-2'-deoxyadenosine (2-CdA), a prototypet teratogen: Induction of lumbar hernia in the rat and species comparisons for the teratogenic responses. *Teratology* 66: 6–18.
25. Knapp GW, Setzer RW, Fuscoe JC (2003). Quantitation of aberrant interlocus T-cell receptor rearrangements in mouse thymocytes and the effect of the herbicide 2,4-dichlorophenoxyacetic acid. *Environmental Molecular Mutagenesis*, 42: 37–43.
26. Rogers JM, Setzer RW, Branch S, Chernoff N (2004). Chemically induced supernumerary lumbar ribs in CD-1 mice: size distribution and dose response. *Birth Defects Research*, 71: 17–25.
27. Smialowicz RJ, Burgin DE, Williams WC, Diliberto JJ, Setzer RW, Birnbaum LS (2004). Xyp1A2 is not required for 2,3,7,8-tetrachlorodibenzo-*p*-dioxin-induced immunosuppression. *Toxicology*, 197, 15–22.
28. Slikker W, Andersen ME, Bogdanffy MS, Bus JS, Cohen SD, Conolly RB, David RM, Doerrer NG, Dorman DC, Gaylor DW, Hattis D, Rogers JM, Setzer RW, Swenberg JA, Wallace K (2004). Dose-dependent transitions in mechanisms of toxicity. *Toxicology and Applied Pharmacology (in press)*.
29. Slikker W, Andersen ME, Bogdanffy MS, Bus JS, Cohen SD, Conolly RB, David RM, Doerrer NG, Dorman DC, Gaylor DW, Hattis D, Rogers JM, Setzer RW, Swenberg JA, Wallace K (2004). Dose dependent transitions in mechanisms of toxicity: case studies. *Toxicology and Applied Pharmacology*.

BIOGRAPHICAL SKETCH

NAME: Jane Ellen Simmons
Branch

POSITION TITLE: Toxicologist, Pharmacokinetics

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
UNC-Chapel Hill, NC	B.S.	1974	Zoology
School of Public Health, UNC-Chapel Hill, NC	M.S.P.H.	1978	Envrn. Manag. & Prot.
School of Public Health, UNC-Chapel Hill, NC	Ph.D.	1983	Toxicology

PROFESSIONAL EXPERIENCE:

1984-1986: National Research Council Resident Research Associate, U.S. EPA, RTP, NC

1986-Present: Toxicologist, NHEERL, U.S. EPA, RTP, NC

1992-Present: Assistant (92-02)/Associate (03-04) Adjunct Professor, School of Public Health, UNC-Chapel Hill
Diplomate, American Board of Toxicology, 1991; Recertification, 1996, 2001

SELECTED AWARDS AND HONORS: (Since Jan. 1., 1998):

U.S. EPA Sustained Superior Performance Award, 2003

U.S. EPA Silver Medal, 2002

U.S. EPA Sustained Superior Performance Award, 2001

U.S. EPA Scientific and Technological Achievement Award, 2001

INVITED LECTURES/SYMPOSIA: (Since Jan. 1., 1999):

1. ILSI Conference on Water Disinfection: Balancing Chemical and Microbial Risks, 'Disinfection ByProduct Mixtures: An Historical Perspective, Present Research and Future Research Needs', Miami FL, November, 1999.
2. NC Science Advisory Board, 'Advanced Age Increases Carbon Tetrachloride Hepatotoxicity', March, 2000.
3. International Society for Exposure Analysis, Disinfection ByProducts Symposium, 'The Toxicology and Risk Assessment of Disinfection ByProducts', Monterey, CA, October, 2000.
4. Application of Technology to Chemical Mixtures, 'Development of an Research Strategy for Integrated Technology-Based Toxicology Studies on Disinfection ByProducts', Fort Collins, CO, January, 2001.
5. Microbial/Disinfection ByProducts Health Effects Symposium, 'Integrated Disinfection By-Products Mixtures Research: Toxicological and Chemical Evaluation of Alternative Disinfection Scenarios', Lisle, IL, March, 2001.
6. U.S. EPA Research Coordination Team Briefing, 'Combined Toxicological and Chemical Evaluation of Complex Mixtures of Disinfection By-Products', March, 2002.
7. International Conference on Chemical Mixtures, 'Component-Based and Whole-Mixtures Assessments in Addressing the Toxicity of the Unidentified Fraction of Complex Mixtures: Drinking Water as an Example', Atlanta, GA, Sept., 2002.
8. Society of Toxicology Cumulative Risk Workshop, 'Designing Studies and Collecting Data Useful for Cumulative Risk Assessment', Salt Lake City, March, 2003.
9. Toxicology and Risk Assessment Conference, 'Methods and Techniques for Dealing with the Unidentified Fraction of Complex Mixtures', Fairborn, OH, May, 2003.
10. Chlorine Chemistry Council, 'Toxicological and Chemical Evaluation of Complex Mixtures of Disinfection By-Products for Alternative Disinfection Scenarios', Washington, D.C., July, 2003
11. ETD/NHEERL, A Mixtures Approach to Disinfection By-Products, RTP, NC January, 2004
12. Office of Water, U.S. EPA, 'Integrated Disinfection By-Products Mixtures Research: Toxicological and Chemical Evaluation of Alternative Disinfection Scenarios', Washington, D.C., March, 2004.
13. Toxicology and Risk Assessment Conference, Moving From External Exposure Concentration to Internal Dose: Duration Extrapolation Based on Physiologically-Based-Pharmacokinetic-Model Derived Estimates of Internal Dose, Cincinnati, OH, April, 2004.

14. Exploring the Current Science on Disinfection By-Products Meeting, 'A Mixtures Approach to Understanding the Health Consequences of Disinfection By-Product Exposure', RTP, NC, September, 2004.
15. Society of Toxicology Contemporary Topics in Toxicology Conference, Charting the Future: Building the Foundation for Mixtures Joint Toxicity and Risk Assessment, 'Experimental Design', Atlanta, GA, Feb. 16-17, 2005

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY: (Selected Ex,'98-present):

- NIEHS Superfund Center Grant Review Panel, Oct., 2004.
- Society of Toxicology Mixtures Task Force, 2003-present.
- Organizing Committee, Society of Toxicology Contemporary Topics in Toxicology Conference, Charting the Future: Building the Foundation for Mixtures Joint Toxicity and Risk Assessment, Atlanta, GA, Feb. 16-17, 2005
- Steering Committee, International Conference on Chemical Mixtures, September 10-12, 2002, Atlanta, GA.
- Member, Binary Weight of Evidence Workgroup of ATSDR, 2001-2002.
- Expert Panel, Review of ATSDR Guidance for Chemical Mixtures Risk Assessment; Review of Guidance for Development of Interaction Profiles, 2000.
- Expert consultant to the North Carolina Science Advisory Board, re-evaluation of the human health risk(s) associated with exposure to carbon tetrachloride, 2000.
- Editorial Board, Journal of Toxicology and Environmental Health, 1995 – Present

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:(Selected Examples, Jan., 1998-present):

- Cumulative Risk Theme Leader, Environmental Toxicology Division Extramural Peer Review, November, 2003
- Member, Human Health Risk Assessment Implementation Planning Team, 2000-present.
- Co-Coordinator, NHEERL Limits of Additivity Project Plan, 2000-present.
- Member, Supplementary Guidance Workgroup for Chemical Mixtures Risk Assessment, 1995 - 2000.
- Member, Goal 1 Team (Support the Agency's Mission) for the NHEERL Organizational Strategy, 2000-2005.
- Member, Expert Advisory Panel to OPP on Cumulative Risk Assessment for Pesticides, 1999.
- Project Coordinator, Integrated Cross-ORD DBP Mixtures Research Program, 1999-present.
- Member, Cross-Divisional Air Toxics Workgroup, 1995 - present.
- Project Officer, Pesticides mixtures cooperative agreement, 1999 - present.

PUBLICATIONS (January 1, 1999 to present (selected examples), out of a career total of 86 publications):

1. Gennings, C., Teuschler L, Hartley, W. R, Thiyagarajah, A. and Simmons, J. E. Novel Statistical Methods for Risk Assessment of Disinfection By-Product Mixtures, **Proceedings of the American Water Works Association Conference**. TU 22.2 (CD ROM). 1999
2. Hartley, W. R., Gennings, C., Teuschler, L., Thiyagarajah, A., and Simmons, J.E. Advances in the Toxicological Assessment of Disinfection By-Products in Rodent and Fish Biomedical Models. **Proceedings of the American Water Works Association Conference**. TU 22.1 (CD ROM). 1999
3. Schoeffner, D. J., Warren, D. A., Muralidhara, S., Bruckner, J. V. and Simmons, J. E. Organ Weights and Fat Volume in Rats as a Function of Strain and Age. **Journal of Toxicology and Environmental Health** 56:1449-462, 1999.
4. Boyes, W. K., Bushnell, P., Crofton, K., Evans, M. and Simmons, J. E. Neurotoxic and Pharmacokinetic Responses to Trichloroethylene as a Function of Exposure Scenario. **Environmental Health Perspectives** 108 (Suppl.2):317-322, 2000.
5. Teuschler, L. K., Gennings, C., Hartley, W. R., Stitler, W. M., Colman, J. T., Hertzberg, R. C., Thiyagarajah, A. Lipscomb, J. C. and Simmons, J. E. A Multiple-Purpose Design Approach to the Evaluation of Risks from Mixtures of Disinfection By-Products. **Drug and Chemical Toxicology** 23(1):307-321, 2000.
6. U.S. EPA (Contributor). Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures. EPA/630/R-00/002. 2000.
7. U.S. EPA (Contributor). Conducting a Risk Assessment of Mixtures of Disinfection By-Products (DBPs) for

- Drinking Water Treatment Systems. NCEA-C-0791. (Key GPRA Deliverable #534). 2000.
8. Simmons, J. E., Teuschler, L. K. and Gennings, C. The Toxicology of Disinfection By-Products: Methods for Multi-Chemical Assessment, Present Research Efforts and Future Research Needs. In: *Microbial Pathogens and Disinfection By-Products in Drinking Water: Health Effects and Management of Risks*. Eds., Craun, G. F., Hauchman, F. S and Robinson, D. E., ILSI Press, Washington. pp: 325-340, 2001.
 9. Evans, M. V., Boyes, W. K., Simmons, J. E., Litton, D. K. and Easterling, M. R. A Comparison of Haber's Rule at Different Ages Using a PBPK Model for Chloroform in Rats. **Toxicology** 176(1-2):11-23, 2002.
 10. Richardson, S. D., Simmons, J. E., Rice, G. DBPs: The Next Generation. **Environmental Science and Technology** 36(9):197A-205A, 2002.
 11. Simmons, J. E., Boyes, W. K., Bushnell, P. J., Raymer, J., Limsakun, T., McDonald, A. and Evans, M.V. A Physiologically-Based Pharmacokinetic Model for Trichloroethylene with Specificity for the Long-Evans Rat. **Toxicological Sciences** 69:3-15, 2002.
 12. Simmons, J. E., Richardson, S. D., Speth, T., Miltner, R. J., Rice, G., Schenck, K., and Teuschler, L., K. Development of a Research Strategy for Integrated Technology-Based Toxicology Studies on Drinking Water Disinfection ByProducts. **Environmental Health Perspectives** 110 (Supplement 6): 1013.1024, 2002.
 13. Teuschler, L. K. and Simmons, J. E. Approaching the Toxicity of Disinfection By-Products in Drinking Water as a Mixtures Problem. **Journal of the American Water Works Association** 95:131-138, 2003.
 14. Boyes, W., K., Bercegeay, M., Ali, J. S., Krantz, T., McGee, J., Evans, M.V., Raymer, J. H., Bushnell, P.J. and Simmons, J. E. Dose-Based Duration Adjustments for the Effects of Inhaled Trichloroethylene on Rat Visual Function. **Toxicological Sciences** 76(1): 121-130 (2003).
 15. Simmons, J. E., Teuschler, L. K., Gennings, C., Speth, T. F., Richardson, S. D., Miltner, R. J., Narotsky, M. G., Schenck, K. D., Hunter, E. S. III, Hertzberg, R. C. and Rice, G. Component-Based and Whole-Mixture Techniques for Addressing the Toxicity of Drinking-Water Disinfection-ByProduct Mixtures. **Journal of Toxicology and Environmental Health Part A** 67:741-754, 2004.
 16. Casey, M., Gennings, C., Carter, W. H., Jr., Moser, V. C. and Simmons, J. E. Detecting Interaction(s) and Assessing the Impact of Component Subsets in a Chemical Mixture Using Fixed-Ratio Mixture Rays Designs. **Journal of Agricultural, Biological and Environmental Statistics** 9(3):339-361 (2004).
 17. Gennings, C., Carter, W. H., Jr., Casey, M., Moser, V., Carchman, R. and Simmons, J. E. Analysis of Functional Effects of a Mixture of Five Pesticides Using a Ray Design. **Environmental Toxicology and Pharmacology** 18(2):115-125, 2004.
 18. Casey, M., Gennings, C., Carter, W. H., Jr., Moser, V. C. and Simmons, J. E. Ds-Optimal Designs for Studying Combination of Chemicals Using Multiple Fixed-Ratio Ray Experiments. **Environmetrics** (In Press) 2004.
 19. Meadows, S. L., Gennings, C., Carter, W. H., Jr. and Simmons, J. E. Analysis of Mixtures of Drugs/Chemicals Along a Fixed Ratio Ray Without Single Chemical Data to Support an Additivity Model. **Journal of Agricultural, Biological and Environmental Statistics** (In Press) 2004.
 20. Boyes, W. K., Simmons, J. E., Eklund, C., Benignus, V., Janssen, P. and Bushnell, P. J. Applications of Dosimetry Modeling to Assessment of Neurotoxic Risk. **Environmental Toxicology and Pharmacology** (In Press, June, 2004).
 21. Teuschler, L. K., Hertzberg, R. C., Rice, Glenn E. and Simmons, J. E. EPA Project-Level Research Strategies for Chemical Mixtures: Targeted Research for Meaningful Results. **Environmental Toxicology and Pharmacology** (In Press) 2004.
 22. Bushnell, P. J., Shafer, T. J., Bale, A. S., Boyes, W. K., Simmons, J. E., Eklund, C. and Jackson, T. L. Development and Application of an Exposure-Dose-Response Model for the Acute Neurotoxicity of Organic Solvents. **Environmental Toxicology and Pharmacology** (In Press) 2004.
 23. Simmons, J. E., Evans, M. V. and Boyes, W. K. Moving From External Exposure Concentration to Internal Dose: Duration Extrapolation Based on Physiologically-Based Pharmacokinetic Derived Estimates of Internal Dose, **Journal of Toxicology and Environmental Health** (In Press) 2004.
 24. Rice, G., Teuschler, L. K., Simmons, J. E. and Hertzberg, R. C. Assessing Human Health Risks Posed by Environmental Chemical Mixture. **Encyclopedia of Toxicology** (In Press) 2004.
 25. Lilly, M. Z., Sey, Y. M., Seely, J. C., House, D. E., Simmons, J. E. The influence of gavage vehicle and concurrent exposure to trichloroethylene on chloroform hepatic and renal toxicity. **Journal of Toxicology and Environmental Health** (Accepted Subject to Revision)

BIOGRAPHICAL SKETCH**NAME: Babasaheb Sonawane****POSITION TITLE: Supervisory Interdisciplinary Toxicologist****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
University of Poona-Poona (India)	B.S.	1962	Agriculture
University of Poona-Poona (India)	M.S.	1965	Agriculture-Entomology
University of Missouri-Columbia, Missouri	PhD.	1971	Entomology-Toxicology

PROFESSIONAL EXPERIENCE:

Supervisory Interdisciplinary Toxicologist 1995-Present
Effects Identification and Characterization Group, NCEA, ORD, EPA

Chief, Reproductive and Developmental Toxicology Branch 1990 -1995
Human Health Assessment Group, OHEA, ORD, EPA

Biologist 1985 -1990
Reproductive Effects Assessment Group, OHEA, ORD, EPA

Senior Staff Fellow 1983 - 1985
Division of Toxicology, Center for Veterinary Medicine, Food and Drug Administration

Research Assistant Professor of Pediatrics and Animal Biology 1976-1983
School of Medicine and School of Veterinary Medicine, University of Pennsylvania

Senior Research Associate 1975-1976
Department of Pediatrics, Children's Hospital of Philadelphia

Post-doctoral Fellow 1972-1975
National Institute of Environmental Health Sciences

PROFESSIONAL SOCIETIES AND PUBLICATION BOARDS:

- Teratology Society
- American chemical Society
- New York Academy of Sciences
- International Society of Xenobiotic
- American Association of Advancement of Sciences

SELECTED AWARDS AND HONORS :

- Science and Technology Achievement Award – Level 2: for publication co-authored in Toxicological Sciences. 66(2):185-200 (2002)
- Office of Pesticides Program Bronze Medal for Harmonization of Reproductive and Developmental Toxicity Testing Protocols (1999)

INVITED LECTURES/SYMPOSIA:**International:**

- Munich, Germany – October 2004: International Conference on “Recent Advances in Benzene Toxicity Research.”

- Bangkok, Thailand – August 2004: Evolving Genetics and Genomics Conference.
- Brussels, Belgium – 2003: International Society of Risk Analysis.
- Bangkok, Thailand – 2002: WHO Conference on environmental Threats to the Health of Children: Hazards and Vulnerability.
- 1999, 2000, 2002: International Neurotoxicology Conference Series at various locations.

National:

- The EPA Colloquium on a Framework for Children's Health Risk Assessment (Oct. 2004).
- Hawaii – 2004: 21st International Neurotoxicology Conference.
- New York Academy of Medicine – May 2003: "Early Origins of Neurodegenerative Diseases."
- 2003 – Molecular and Epidemiologic Markers in Toxicology, organized by CDC/EPA and NIEHS
- 2002- Structure Activity Relationship and its Application in Developmental Toxicity.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Manuscripts reviewer for scientific journals & Science/Critical Reviews in Toxicology, Journal of Toxicology and Environmental Health, Environmental Health Perspectives, Reproductive Toxicity, Neurotoxicology, Teratology, Environmental Research, etc. Served as EPA liaison to the Environmental Health Committee of the American Academy of Pediatrics (1993-2001). Member AAALAC Board representing-Teratology Society

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Since 1985, provided leadership and/or assisted in developing, coordinating and supervising several health risk assessment of chemicals for the Agency programs, examples include: ethylene oxide, benzene, tetrachloroethylene, phosgene, vinyl chloride, methyl mercury, etc; including several health risk assessment and methodology and risk assessment and toxicity testing guidelines for WHO-IPCS, and OECD. Planned, organized, sponsored and/or participated in several national/international scientific workshops/meetings and conferences promoting children's environmental health and risk assessment issues. Represented the Agency in developing successful research collaborations with Ukraine and India.

PUBLICATIONS (15 out of 50 and over 80 abstracts and 10 Book chapters)

1. Bostwick, D. G., Burke, H. B., Djakiew, D., Euling, S., Ho, S. M., Landolph, J., Morrison, H., Sonawane, B., Shifflett, T., Waters, D. J., and Timms, B. (2004). Human prostate cancer risk factors. (2004) *Cancer*. 19:101 (S10) 2371-2490.
2. Daston, G., Faustman, E., Ginsberg, G., Fenner-Crisp, P., Olin, S., Sonawane, B., Bruckner, J., Breslin, W., and McLaughlin, T. J. (2004). A framework for assessing risks to children from exposure to environmental agents. *Environ.Health Perspect*. **112**, 238-256.
3. Ginsberg, G., Hattis, D., Russ, A., and Sonawane, B. (2004). Physiologically based pharmacokinetic (PBPK) modeling of caffeine and theophylline in neonates and adults: implications for assessing children's risks from environmental agents. *J.Toxicol.Environ.Health A* **67**, 297-329.
4. Ginsberg, G., Hattis, D., Miller, R., and Sonawane, B. (2004). Pediatric pharmacokinetic data: implications for environmental risk assessment for children. *Pediatrics* **113**, 973-983.
5. Ginsberg, G., Hattis, D., and Sonawane, B. (2004). Incorporating pharmacokinetic differences between children and adults in assessing children's risks to environmental toxicants. *Toxicol.Appl.Pharmacol*. **198**, 164-183.
6. Ginsberg, G., Slikker, W., Jr., Bruckner, J., and Sonawane, B. (2004). Incorporating children's toxicokinetics into a risk framework. *Environ.Health Perspect*. **112**, 272-283.

7. Hattis, D., Ginsberg, G., Sonawane, B., Smolenski, S., Russ, A., Kozlak, M., and Goble, R. (2003). Differences in pharmacokinetics between children and adults-II. Children's variability in drug elimination half-lives and in some parameters needed for physiologically-based pharmacokinetic modeling. *Risk Anal.* **23**, 117-142.
8. Olin, S. S. and Sonawane, B. R. (2003). Workshop to develop a framework for assessing risks to children from exposure to environmental agents. *Environ.Health Perspect.* **111**, 1524-1526.
9. Berlin, C. M., Jr., LaKind, J. S., Sonawane, B. R., Kacew, S., Borgert, C. J., Bates, M. N., Birnbach, N., Campbell, R., Dermer, A., Dewey, K. G., Ellerbee, S. M., Furst, P., Giacoia, G. P., Gartner, L., Groer, M., Haynes, S. G., Humerick, S. S., Lawrence, R. A., Lorber, M., Lovelady, C., Mason, A., Needham, L. L., Picciano, M. F., Plautz, J., Ryan, J. J., Selevan, S. G., Sumaya, C. V., Tully, M. R., Uhl, K., Vesell, E., and Wilson, J. T. (2002). Conclusions, research needs, and recommendations of the expert panel: technical workshop on human milk surveillance and research for environmental chemicals in the United States. *J.Toxicol.Environ.Health A* **65**, 1929-1935.
10. Ginsberg, G., Smolenski, S., Hattis, D., and Sonawane, B. (2002). Population distribution of aldehyde dehydrogenase-2 genetic polymorphism: implications for risk assessment. *Regul.Toxicol.Pharmacol.* **36**, 297-309.
11. Ginsberg, G., Hattis, D., Sonawane, B., Russ, A., Banati, P., Kozlak, M., Smolenski, database derived from the therapeutic drug literature. *Toxicol.Sci.* **66**, 185-200.
12. LaKind, J. S., Birnbach, N., Borgert, C. J., Sonawane, B. R., Tully, M. R., and Friedman, L. (2002). Human milk surveillance and research of environmental chemicals: concepts for consideration in interpreting and presenting study results. *J.Toxicol.Environ.Health A* **65**, 1909-1928.
13. Landrigan, P. J., Sonawane, B., Mattison, D., McCally, M., and Garg, A. (2002). Chemical contaminants in breast milk and their impacts on children's health: an overview. *Environmental Health Perspectives* **110**, A313-A315.
14. Barr, M., Jr., DeSesso, J. M., Lau, C. S., Osmond, C., Ozanne, S. E., Sadler, T. W., Simmons, R. A., and Sonawane, B. R. (2000). Workshop to identify critical windows of exposure for children's health: cardiovascular and endocrine work group summary. *Environ.Health Perspect.* **108 Suppl 3**, 569-571.
15. Bayliss, D. and Sonawane, B. (2000). Issues for discussion: benzene-induced leukemia--human studies. *J. Toxicology Environmental Health A* **61**, 467-470.

BIOGRAPHICAL SKETCH**NAME: James Starr****POSITION TITLE: Physical Scientist****EDUCATION/TRAINING:**

Institution	Degree	Year	Field of Study
University of Iowa	B.S	1986	Biology
University of Iowa	Ph.D.	1998	Preventive Medicine and Environmental Health
Lovelace Respiratory Research Institute	Postdoc.	1999-2001	Toxicology
United States Environmental Protection Agency	Postdoc.	2001-2002	Human Health

PROFESSIONAL EXPERIENCE:

Physical Scientist, (MDAB), RTP, NERL, EPA	2002-Present
Post Doctoral Fellow (USEPA)	2001-2002
Post Doctoral Fellow (LRRI)	2001-2002
Graduate Research Assistant, University of Iowa	1991-1998
Senior Research Assistant, University of Iowa	1986-1991
Biological Laboratory Technician, USVAMC	1985-1986

INVITED LECTURES/SYMPOSIUM:

Starr, J.M. ; Ménache, M.G.; Henderson, R F. Use of Multiple Biomarkers of Benzene to Improve Exposure Assessment. Air & Waste Management Association: International Symposium on the Measurement of Toxic and Related Air Pollutants. Research Triangle Park, NC. September 12-14, 2000.

Starr, J.M.; Krone, J.R.; Ménache, M.G.; Henderson, R F. Development of Methods for Analysis of Biomarkers of Benzene Exposure Using Gas Chromatography/Mass Spectrometry (GC/MS) and Matrix Assisted Laser Desorption and Ionization (MALDI). Society of Toxicology 39th Annual Meeting. Philadelphia, PA. March 19-23, 2000.

Starr, J.M. ; Ménache, M.G.; Henderson, R F. Use of Multiple Biomarkers of Benzene to Improve Exposure Assessment. International Symposium on the Measurement of Toxic and Related Air Pollutants. September 8, 2000.

BIOGRAPHICAL SKETCH

NAME: Tammy Edwards Stoker POSITION TITLE: Research Biologist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
North Carolina State University	B.S.	1987	Zoology/Pre-Med
North Carolina State University	M.S.	1993	Toxicology
NCSU College of Veterinary Medicine	Ph.D.	1998	Pharmacology

PROFESSIONAL EXPERIENCE:

Research Biologist, 2002-2004; Endocrinology Branch, Reproductive Toxicology Division, NHEERL, ORD, U.S. EPA, RTP, NC

Research Biologist, 1998-2001; Gamete and Early Embryo Biology Branch, Reproductive Toxicology Division, NHEERL, ORD, U.S. EPA, RTP, NC

Research Biologist, 1995-1997; Endocrinology Branch, Reproductive Toxicology Division, NHEERL, ORD, U.S. EPA, RTP, NC

Senior Scientist/Supervisor, 1992-1994; Scientist, 1991-1992; Scientist Associate, 1988-1991; ManTech Environmental Technology, Inc., Research Triangle Park, NC.

Research Assistant, 1986-1987; Cell Biology/Tissue Culture Laboratory, Immunology Department, NCSU College of Veterinary Medicine, Raleigh, NC.

Veterinary Technician, 1985-1988; Western Boulevard Animal Hospital, Raleigh, NC.

PROFESSIONAL SOCIETIES & PUBLICATION BOARDS:

Societies:

- Member, Society of Toxicology (2003 to present)
- Member, Society for the Study of Reproduction (1998-present)
- Member, Triangle Consortium for Reproductive Biology (1991-present)
- Member, North Carolina Society of Toxicology (1990-present)

Journal Reviewer:

- Biology of Reproduction (2000-present).
- Toxicological Sciences (2000-present).
- Regulatory Toxicology and Pharmacology (2002-present).

SELECTED AWARDS AND HONORS:

- 1999 Best Paper Published in Reproductive & Developmental Toxicology Speciality Section, Toxicological Sciences.
- 2000 Best Paper Published in Reproductive & Developmental Toxicology Speciality Section, Toxicological Sciences
- 2000 Recipient, Office of Pesticides Programs Health Effects Division Team Award for work related to the mode of action of the chlorotriazine herbicides.
- 2001 Recipient, EDSP team award for Exceptional/Outstanding ORD Technical Assistance to

- the Regions or Program Offices.
- 2002 Recipient, Office of Science Coordination and Policy award for contributions to the EDSP of research which lead to the development of new testing methods and insights into the mode of action of endocrine disruptors.
- 2003 STAA award, Level III, The effects of endocrine disruption in male and female pubertal development.
- 2004 U.S. EPA ORD Honor Award, Bronze Medal for Commendable Service, Significant achievements in working with program offices to promote the use of strong science in Agency decisions.

INVITED LECTURES/SYMPOSIA (Selected presentations in the last 5 years)

- Alterations in developmental prolactin levels and prostate inflammation. North Carolina State Univ., Dept. of Toxicology, Raleigh, NC, Oct. (1999).
- Neuroendocrine and reproductive effects of pesticides. British Toxicology Society Annual Meeting, York University, (2000). Abstract published in Toxicology, (2000) Vol. 148(1):17.
- Prepubertal prolactin and prostate inflammation. Breast and Prostate Faculty, NIEHS, (2000).
- Atrazine and metabolites alter pubertal progression. Endocrine Disruptors Workgroup, (2000).5,
- The role of prolactin in the developmental toxicology of the rat prostate. Triangle Consortium of Reproductive Biology, (2002).
- The relationship between body weight and pubertal development: A special study. Presented at the EDMVS meeting July 23, 2000.
- The effect of a lactational exposure to atrazine on the offsprings prostate. Atrazine Meeting (2002).
- Evaluation of DE-71, a commercial PBDE mixture, in the EDSP Tier 1 male and female pubertal protocols. Presented at the EDC Forum in RTP, NC October 8, 2003.
- Development and validation of standardized in vivo protocols that identify endocrine disrupting chemicals.
- Presented at the Endocrine Disruptors Research Program Review Workshop in RTP, NC October 29, 2003.
- Do the pubertal protocols accurately detect thyrotoxicants with different MOAs? Presented to the EDMVS in Washington, D.C. December 11, 2003.
- Impact of body weight (BW) change on the EDSTAC Tier I male and female pubertal protocols. Presented to the Serona Pubertal Progression Workshop (2003).

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

- Member, Membership committee, Society for the Study of Reproduction (2004 to present).
- Board member, Triangle Consortium for Reproductive Biology (2001-present), co-chair (2004).
- Invited participant/Expert: International Serono Workshop on Pubertal Progression, Nov., 2003, Chicago, IL.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

- Member, Reproductive Toxicology Division's Awards and Recognition Committee (2004 to present).
- Member, OPPTS/ORD Endocrine Disruptors Screening and Testing Implementation Group (1998 to present).
- NIEHS/EPA Breast and Prostate Faculty Group (1999-2002).
- Moderator of the Mechanism of Action Session at the EPA EDC Workshop, RTP, NC, Oct. 29-31(2002).
- Member, Reproductive Toxicology Division Work Utilization Taskforce, (2003).
- Coordinator, Reproductive Toxicology Division Seminar Series, (1995-2000).

PUBLICATIONS (14 selected from a total of 18 in the last five years):

- Stoker, T.E., Robinette, C.L. and Cooper, R.L. (1999). Maternal exposure to atrazine during lactation suppresses suckling-induced prolactin release and results in prostatitis in the adult offspring. **Toxicological Sciences**. 52(1):68-79.
- Stoker, T.E., Robinette, C.L., Britt, B.H. and Cooper, R.L. (1999). Prepubertal exposure to compounds that increase prolactin in the male rat: Effects on adult prostate. **Biology of Reproduction**. 61(6):1636-1643.
- Stoker, T.E., Robinette, C.L. and Cooper, R.L. (1999). Perinatal exposure to estrogenic compounds and the subsequent effects on the prostate of the adult rat: Evaluation of inflammation in the ventral and lateral lobes. **Reproductive Toxicology** 13: 463-472.
- Cooper, R.L., Goldman, J.M., **Stoker, T.E.** (1999) Neuroendocrine and reproductive effects of contemporary-use pesticides. **Toxicology and Industrial Health** 15: 26-36.
- Stoker, T.E., Parks, L.G., Gray, L.E., and Cooper, R.L., (2000). Effects of endocrine disrupting chemicals on puberty in the male rat: A review of the EDSTAC recommendations. **Critical Reviews in Toxicology** 30:197-252.
- Cooper, R.L., **Stoker, T.E.**, Tyrey, L., Goldman, J. M. and McElroy, W.K. (2000). Atrazine disrupts hypothalamic control of pituitary-ovarian function. **Toxicological Sciences**. 53:297-307.
- Laws, S.C., Ferrell, J.M., **Stoker, T.E.**, Schmid, J., and Cooper, R.L. (2000). The effect of atrazine on puberty in female wistar rats: an evaluation in the protocol for the assessment of pubertal development and thyroid function. **Toxicological Sciences** 58(2): 366-76.
- Stoker, T.E., Laws, S.C., Guidici, D., and Cooper, R.L. (2000). The effects of atrazine on puberty and thyroid function in the male wistar rat: An evaluation of a protocol for the assessment of pubertal development and thyroid function. **Toxicological Sciences** 58: 50-59.
- Stoker, T.E., Goldman, J.M., and Cooper, R.L. (2001) Delayed ovulation and pregnancy outcome: effect of environmental toxicants on the neuroendocrine control of the ovary. **Environmental Toxicology and Pharmacology** 9(3):117-129.
- Stoker, T.E., Guidici, D.L., Laws, S.C. and Cooper, R.L. (2002) The Effects of Atrazine Metabolites on Puberty and Thyroid Function in the Male Wistar Rat: An Evaluation in the Male Pubertal Protocol. **Toxicological Sciences** 67 (2):198-206.
- Stoker, T.E., Jeffay, S.C., Zucker, R., Cooper, R.L. and Perreault, S.D. (2003) Abnormal fertilization is responsible for reduced fecundity following Thiram-induced ovulatory delay in the rat. **Biology of Reproduction** 68, 2142-2149.
- Laws SC, Ferrell JM, Stoker TE, Cooper RL. (2003) Pubertal development in female Wistar rats following exposure to propazine and atrazine biotransformation by-products, diamino-S- chlorotriazine and hydroxyatrazine. **Toxicol Sci**. 76(1): 190-200.
- Stoker, T.E., Laws, S.L., Crofton, K.M., Hedge, J.M., Ferrell, J.M., and Cooper, R.L. (2004) Assessment of DE-71, a commercial polybrominated diphenyl ether (PBDE) mixture, in the EDSP male and female pubertal protocols. **tox sciences** DE-71 in pubertal male and female rats. **Toxicol. Sci**. 78(1): 144-155.
- Stoker, T.E., Perreault, S.D., Bremser, K., Marshall, R.S., Murr, A.S. and Cooper, R.L. (Submitted) Acute exposure to molinate alters neuroendocrine control of ovulation in the rat. **Toxicol. Sci**.

BIOGRAPHICAL SKETCH**NAME: Daniel M. Stout II****POSITION TITLE: Biological Scientist****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
Mississippi State University, Starkville, MS	B.S.	1987	Agriculture
North Carolina State University, Raleigh NC	M.S.	1991-1994	Entomology
North Carolina State University, Raleigh NC	Ph.D.	1994-1998	Entomology
US. EPA, RTP NC	Postdoc.	1998-2000	Human Health

PROFESSIONAL EXPERIENCE :

Biological Scientist, Exposure Measurement and Analysis Branch, RTP, NERL, EPA	2000-Present
Post Doctoral Fellow	1998-2000
Research Assistant, North Carolina State University,	1993-1998
Contractor, North Carolina natural Science Museum	1994-1996
Technical Director, Wood Destroying Organisms, Cook's Pest Control, Decatur AL	1987-1991

LECTURES/SYMPOSIUM:

1. Measuring Pesticide Exposure. North Carolina Central University, Durham NC (2003).
2. The Distribution of Chlorpyrifos Following a Crack and Crevice Type Application in the U.S. EPA Indoor Air Quality Test House. Indoor Air 2002, The 9th International Conference in Indoor Air Quality and Climate, June 30 - July 5 (2002).
3. The Spatial and Temporal Distribution of Chlorpyrifos in the US EPA Test House Following a Crack and Crevice Type Application. The Society of Occupational and Environmental Health International Conference of Pesticide Exposure and Health. Washington, DC. July 8-12 (2001).
4. Shaw University, Department of Environmental Health - Invited Speaker, The Characteristics of Pesticides and an Examination of Their Fate and Behavior (2001).
5. A Feasibility Study Examining Translocation Pathways and Potential Human Exposures Following a Granular Diazinon Application to Residential Turf. 220th ACS National Meeting, Pesticide Residue Exposure Studies Symposium, Washington, DC, August 20-24 (2000).
6. Postapplication exposure Potential to Pesticides in the Residential Environment. 220th ACS National Meeting, Pesticide Residue Exposure Studies Symposium, Washington, DC, August 20-24 (2000).
7. A Feasibility Study Examining the Potential for Human Exposure to Pet Borne Diazinon Residues Following Residential Turf Applications. Invited Speaker, North Carolina State University Toxicology Departmental Seminar (2000).
8. The Movement and Deposition of Pesticides Following Their Application in and Around Residential Dwellings. Region/ORD Pesticides Workshop. Region 5 Offices October 31 - November 2 (2000).
9. Carpet and a Source and Sink for Chlorpyrifos Following the use of Total Release Aerosols in the EPA Test House. Air and Waste Management Association, Indoor Air Quality Symposium. July 17-19 (2000).

PUBLICATIONS:

- Stout II, D.M.**, Mason, M.A. The distribution of chlorpyrifos following a crack and crevice type application in the US EPA Indoor Air Quality Research House. *Atmospheric Science*, 37:5539-5549 (2003).
- Morgan, M.K., **Stout II, D.M.**, Wilson, N.K. Feasibility study of the potential for human exposure to pet-borne diazinon residues following lawn applications. *Bull. Environ Contam. Toxicol.*, 66:295-300 (2001).
- Mason, M.A., Sheldon, L.S., **Stout II, D.M.** The distribution of chlorpyrifos in air, carpeting, and dust and its re-emission from carpeting following the use of total release aerosols in the indoor air quality test house. *In Proceedings of a Symposium, Engineering Solutions to Indoor Air Quality Problems*, Raleigh, NC, July 17-19, 2000.
- Stout II, D.M.**, Leidy, R.B. A Preliminary Examination of the Translocation of Microencapsulated Cyfluthrin Following Applications to the Perimeter of Residential Dwellings. *J. Environ. Sci. Health*, **B35(4)**, 477-489 (2000).

BIOGRAPHICAL SKETCH**NAME: Linda K. Teuschler****POSITION TITLE: Mathematical Statistician****EDUCATION/TRAINING**University of Cincinnati
Cincinnati, OhioM.S. in Mathematics
Graduated 6/87Northern Kentucky University
Highland Heights, KentuckyB.S. in Mathematics
Graduated 8/85

Leadership Team. 2004-2005.

NCEA-Cin Foci of Excellence Writing Team. Lead Writer on Chemical Mixtures. 2003-2004.

NCEA Technical Qualifications Board. 2001-2005.

NCEA-Cin Acting Senior Science Advisor. July 28-Aug 25, 2003.

NCEA-Cin Team Leader. 1995-1997. Human and Ecological Effects Team.

NCEA-Cin member of leadership/management Science Quality Integration Team. 1995-1997.

Primary Back-up for Office Director and Deputy Director. 1996-1997.

NCEA Committee to Implement Changes in NCEA Organizational Structure. 1994.

NCEA-Cin's Science Quality Council. 1994.

Chemical Mixtures Assessment Branch, Acting Branch Chief. April-June, 1994.

SELECTED AWARDS AND HONORS:

U.S. EPA Silver Medal for Superior Service 2002. Technical Panel for Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures.

NCEA Peer Award for Scientific Achievement. 2001.

Superior Accomplishment Recognition Award for the 4 Lab project and the 2001 drinking water disinfection by-product mixtures 2000 Report. 2001.

NCEA Teamwork Award. 2000. NCEA Peer Awards. Risk Assessment Forum Technical Panel for the Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures.

U.S. EPA Bronze Medal for Commendable Service. 2000. For the Comparative Risk Framework Methodology.

Superior Accomplishment Recognition Award for advancing the state of the science regarding the assessment of disinfection by-products in drinking water. 2000.

Society of Toxicology Risk Assessment Section Award. 2000. Translating the Results of Risk Characterization into Human Health Conditions in U.S. EPA's Comparative Risk Framework Methodology (CRFM). Society of Toxicology 39th Annual Meeting.

INVITED LECTURES/SYMPOSIA (Selected presentations):

1. Dose-Response Modeling of Exposures Above the Reference Dose Using Categorical Regression Analysis. Toxicology and Risk Assessment Conference. West Chester, Ohio. April 27, 2004.
2. Developing Relative Potency Factors for Pesticide Mixtures: Biostatistical Analyses of Joint Dose-Response. ORD/OPPTS Seminar Series. Washington, DC. March 17, 2004.
3. A Cumulative Risk Assessment Method to Evaluate Multiple-Route Exposures to Chemical Mixtures in Drinking Water. Presentation at the Conference on Toxicology and Risk Assessment. April 30, 2003. Fairborn, OH.
4. Health Risk Estimation and Uncertainty Analyses for Mixtures of Disinfection By-products (DBPs). AWWA National Conference. June 2001. Washington, DC.
5. Extrapolation Issues in Human Health Risk Assessment: Methods for Potential Use in Sex-Specific Risk Assessment. American Statistical Association Annual Conference. Indianapolis, IN. August, 2000.
6. A Multiple Design Approach to the Evaluation of Risks from Complex Mixtures of Disinfection By-Products (DBPs). Conference on Topics in Toxicology and Risk Assessment. Dayton, OH. April, 1999.
7. Evaluating Risks from Complex Mixtures of Disinfection By-Products (DBPs). University of Florida Symposium on Drinking Water and Health. Sarasota, FL. Feb. 26-27, 1999.
8. Research on the Risk Assessment of Mixtures of Disinfection By-Products (DBPs) in Drinking Water. Health Effects Stakeholder Meeting. February 10-12, 1999. Washington, DC.
9. Novel Statistical Methods for Risk Assessment of Water Disinfection By-products. AWWA 1999 Annual Conference Proceedings. Chicago, IL. June 20-24, 1999.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY

Workshops on Methods and Guidance for Health Risk Assessment of Chemical Mixtures.

- Toxicology and Risk Assessment Conferences. Co-Sponsored by the Department of Defense, ATSDR and U.S. EPA. Cincinnati, Ohio: 2000, 2004; Dayton, OH: 2001, 2002, 2003.

- Society for Risk Analysis Annual Meetings. Palm Springs, CA, 2004. Arlington, VA, 2003. New Orleans, LA, 2002. Seattle, WA, 2001. Washington, DC, 2000.

National Drinking Water Advisory Council (NDWAC) Working Group on Drinking Water Research - Subgroup Lead on Drinking Water Contaminant Mixtures. 2001.

Chair, Society of Toxicology Writing Group on Support of Science-Based Decisions Concerning the Evaluation of the Toxicology of Mixtures. 2000-2001.

ILSI Risk Science Institute Panel on Mixtures of Disinfection By-Products. Washington, DC. September 25-26, 1999. Report by expert panel:

ILSI Risk Science Institute. 1998. Assessing the Toxicity of Exposures to Mixtures of Disinfection By-Products - Research Recommendations. Report prepared by the ILSI Risk Science Institute under a cooperative agreement with the EPA's Office of Water.

BIOGRAPHICAL SKETCH**NAME: David J. Thomas****POSITION TITLE: Research Toxicologist****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
Trinity College, Duke University, Durham, NC	B.S.	1968-1972	Zoology
School of Medicine and Dentistry, University of Rochester, Rochester, NY	Ph.D.	1972-1978	Toxicology
School of Medicine, University of North Carolina at Chapel Hill	Postdoc.	1978-1980	Pathology

PROFESSIONAL EXPERIENCE :

Research Toxicologist, Pharmacokinetics Branch,
Experimental Toxicology Division, National Health
and Environmental Effects Research Laboratory (NHEERL) 1991-Present

Assistant Professor, Department of Pediatrics
University of Nebraska Medical Center 1986-1991

Assistant Professor, Department of Pediatrics
School of Medicine, Johns Hopkins University 1984-1986

Assistant Laboratory Director, Lead Poisoning Clinic,
The Kennedy Institute, Baltimore, Maryland 1980-1986

SELECTED AWARDS AND HONORS:

U.S. EPA Science and Technology Achievement Award – Level III – 1996
U.S. EPA Science and Technology Achievement Award – Honorable Mention – 1999

INVITED LECTURES/SYMPOSIA (Selected presentations from a total of 24 in the last 5 years):

1. Speaker, Federal State Toxicology and Risk Analysis Committee meeting, 2000, Research Triangle Park, NC
2. Speaker, Fourth International Conference on the Health Effects of Arsenic, 2000, San Diego, CA
3. Speaker, Department of Nutrition, School of Public Health, University of North Carolina at Chapel Hill, 2001, Chapel Hill, NC
4. Speaker and Session Organizer, Meeting of International Society of Exposure Assessment, 2001, Charleston, SC
5. Speaker, Arsenic in New England Conference, 2002, Manchester, NH
6. Speaker, Fifth International Conference on the Health Effects of Arsenic, 2002, San Diego, CA
7. Speaker, Sixth International Society for Trace Element Research in Humans Conference, 2002, Quebec City, Quebec, Canada
8. Speaker, Joint United States-Chile Conference on Toxicogenomics, 2002, Santiago, Chile
9. Speaker, United States-Japan Conference on Arsenic in Biology and Medicine, 2002, Honolulu, HA
10. Speaker, Laboratory of Pharmacology, National Institute of Environmental Health Sciences, 2003, Research Triangle Park, NC
11. Speaker, U.S. Environmental Protection Agency Region 10 Genomics Seminar Series, 2003, Seattle,

WA

12. Speaker, Society of Toxicology Annual Meeting, Workshop on Arsenic Methylation, 2004, Baltimore, MD
13. Speaker, Federation of American Societies of Experimental Biology Annual Meeting, Symposium on Selenium, 2004, Washington, DC
14. Speaker, Curriculum in Toxicology, University of North Carolina at Chapel Hill, 2004, Chapel Hill, NC

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Member, External Research Advisory Committee, Superfund Research Center, Nelson Institute of Environmental Medicine
 Member, Editorial Board, Toxicology and Applied Pharmacology, 2002-
 Coeditor (with W.R. Chappell, C.O. Abernathy, R.L. Calderon) of Arsenic Exposure and Health Effects V. The Proceedings of the Fifth International Conference on the Health Effects of Arsenic, Elsevier, Amsterdam, 2000

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Principal in preparation of ORD Arsenic Research Strategy
 Member, NHEERL Drinking Water Implementation Plan Committee
 Lead, NHEERL Arsenic Research Planning Group
 Member, NHEERL Synergy Research Committee

PUBLICATIONS (20 selected from a total of 35 published in last 5 years and overall total of 116 papers and 2 books):

1. Styblo, M., Del Razo, L.M., Vega, L., Germolec, D.R., LeCluyse, E.L., Hamilton, G.A., Wang, C., Cullen, W.R., and Thomas, D.J.: Comparative toxicity of trivalent and pentavalent inorganic and methylated arsenicals in human cells. **Arch. Toxicol.** 74:289-299, 2000.
2. Styblo, M., and Thomas, D.J.: Selenium modifies the metabolism and toxicity of arsenic in primary rat hepatocytes. **Toxicol. Appl. Pharmacol.** 172:52-61, 2001.
3. Lin, S., Del Razo, L.M., Styblo, M., Wang, C., Cullen, W.R., and Thomas, D.J.: Arsenicals inhibit thioredoxin reductase in cultured rat hepatocytes. **Chem. Res. Toxicol.** 14:305-311, 2001.
4. Mass, M.J., Tennant, A., Roop, B.C., Cullen, W.R., Styblo, M., Thomas, D.J., and Kligerman, A.D.: Methylated trivalent arsenic species may be in the proximate or ultimate genotoxic forms of arsenic. **Chem. Res. Toxicol.** 14:355-361, 2001.
5. Del Razo, L.M., Styblo, M., Cullen, W.R., and Thomas, D.J.: Determination of trivalent methylated arsenicals in biological matrices. **Toxicol. Appl. Pharmacol.** 174:282-293, 2001.
6. Thomas, D.J., Styblo, M., and Lin, S.: The cellular metabolism and systemic toxicity of arsenic. **Toxicol. Appl. Pharmacol.** 176:127-144, 2001.
7. Lin S., Shi, Q., Nix, F.B., Styblo, M., Beck, M.A., Herbin-Davis, K.M., Hall, L.L., Simeonsson, J.B., and Thomas, D.J.: A novel S-adenosyl-L-methionine: arsenic(III) methyltransferase from rat liver cytosol. **J. Biol. Chem.** 277:10795-10803, 2002.
8. Simeonsson, J.B., Elwood, S.A., Ezer, M., Pacquette, H.L., Swart, D.J., Beach, H.D., and Thomas, D.J.: Development of ultratrace analytical techniques for arsenic measurements. **Talanta** 58; 189-199, 2002.
9. Walton, F.S., Waters, S.B., Jolley, S.L., LeCluyse, E.L., Thomas, D.J., and Styblo, M.: Selenium compounds modulate activity of recombinant rat As^{III} methyltransferase and methylation of arsenite by rat and human hepatocytes. **Chem. Res. Toxicol.** 16:261-265, 2003.
10. Drobná, Z., Jaspers, I., Thomas, D.J., and Styblo, M.: Differential activation of AP-1 in human

- bladder epithelial cells by inorganic and methylated arsenicals. **FASEB Journal** 17:67-69, 2003.
11. Abernathy, C.O., Thomas, D.J., and Calderon, R.L.: Health effects and risk assessment of arsenic, **J. Nutr.** 133:1536-1538, 2003.
 12. Hughes, M.F., Kenyon, E.M., Edwards, B.C., Mitchell, C.T., Del Razo, L.M., and Thomas, D.J.: Accumulation and metabolism of arsenic in mice after repeated oral administration of arsenate. **Toxicol. Appl. Pharmacol.** 191:202-210, 2003.
 13. Waters, S.B., Styblo, M., and Thomas, D.J.: Endogenous reductants support the catalytic function of recombinant rat cyt19, an arsenic methyltransferase. **Chem. Res. Toxicol.** 17:404-409, 2004.
 14. Calderon, R.L., Abernathy, C.O., and Thomas, D.J.: Consequences of acute and chronic arsenic exposure. **Ped. Annals** 33:461-466, 2004.
 15. Thomas, D.J., Waters, S.B., and Styblo, M.: Elucidating the pathway for arsenic methylation. **Toxicol. Appl. Pharmacol.** 198:319-326, 2004.
 16. Drobna', Z., Waters, S.B., Walton, F.S., LeCluyse, E.L., Thomas, D.J., and Styblo, M.: Interindividual variation in the metabolism of arsenic in cultered primary human hepatocytes. **Toxicol. Appl. Pharmacol.** 201:166-177, 2004.
 17. Devesa, V., Del Razo, L.M., Adair B., Drobna, Z., Waters, S.B., Hughes, M.F., Styblo, M. and Thomas D.J.: Comprehensive analysis of arsenic metabolites by pH-specific hydride generation atomic absorption spectrometry. **J. Anal. At. Spectrom.** 19:1460-1467, 2004.
 18. Waters, S.B., Devesa, V., Fricke, M., Creed, J., Styblo, M., and Thomas, D.J.: Glutathione modulates recombinant rat arsenic (+3 oxidation state) methyltransferase-catalyzed formation of trimethylarsine oxide and trimethylarsine. **Chemical Research in Toxicology**, web release date November 12, 2004.

Book Chapters

1. Thomas D.J., Del Razo, L.M., Schreinemachers, D.M., Hudgens, E.E., Le, X.C., and Calderon, R.L.: Dose-response relationships for the metabolism and urinary excretion of arsenicals in humans. *In* Arsenic Exposure and Health Effects IV, ed. By W.R. Chappell, C.O. Abernathy, and R.L. Calderon, pp. 353-365, Elsevier, Amsterdam, 2001.
2. Styblo, M., Waters, S.B., Drobna', Z., Lin, S., Walton, F.S., Jaspers, I., Patel Y.M., Del Razo, L.M., and Thomas D.J.: Production and biological significance of methylated trivalent arsenicals. *In* BITREL 2002. Proceedings of International Symposium on Bio-Trace Elements 2002, pp. 96-100, Tokyo, Japan, 2003.
3. Waters, S.B., Styblo, M., and Thomas, D.J.: A novel S-adenosyl-l-methionine-dependent methyltransferase from rat liver cytosol catalyzes the formation of methylated arsenicals.

BIOGRAPHICAL SKETCH**NAME: Hugh A. Tilson****POSITION TITLE: Assistant Laboratory Director****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
Texas Technological College	BA	1968	Psychology
University of Minnesota	PhD	1972	Psychopharmacology

PROFESSIONAL EXPERIENCE:

2000-Present Assistant Laboratory Director for Multi-Media Research, National Health and Environmental Effects Research Laboratory, US EPA, Research Triangle Park, NC

1989-2000 Director, Neurotoxicology Division, National Health and Environmental Effects Research Laboratory, US EPA, Research Triangle Park, NC

1988-1989 Pharmacologist, Laboratory of Molecular and Integrative Neuroscience, National Institute of Environmental Health Sciences, Research Triangle Park, NC

1977-1988 Pharmacologist, Laboratory of Behavioral and Neurological Toxicology, National Institute of Environmental Health Sciences, Research Triangle Park, NC

1977 Pharmacologist, Laboratory of Environmental Toxicology, National Institute of Environmental Health Sciences, Research Triangle Park, NC

1973-1976 Senior Research Scientist, Pharmacology Department, Bristol Laboratories, Syracuse, NY

1972-1973 Research Associate, Department of Pharmacology, Michigan State University East Lansing, MI

1968-1972 USPHS Trainee in Psychopharmacology, University of Minnesota, Minneapolis, MN

SELECTED AWARDS AND HONORS:

US EPA Bronze Medals for Commendable Service (6 medals)

US EPA Silver Medal for Commendable Service

US EPA Level III Science and Technology Achievement Awards (3)

Psi Chi (Honorary Psychology Society)

Phi Kappa Phi (Honorary Society)

Society of the Sigma Xi

INVITED LECTURES/SYMPOSIA (1999 to Present; selected from a total of 12 in the last 5 years):

Henry Stewart Conference, Washington, DC (1999)

Conference on Topics in Toxicology and Risk Assessment, Dayton, OH (1999)

Pest Management Regulatory Agency (Canada) Neurotoxicity Training Conference, Ottawa, Canada (1999)

International Conference on Environmental Influence on Children: Brain, Development, and Behavior, New York, NY (1999)

18th International Symposium on Toxicologic Pathology of the Nervous System, Washington,

DC (1999)
 Seventeenth International Neurotoxicology Conference, Little Rock, AR (1999)
 Annual Meeting of the Argentina Society of Neurochemistry, Cordoba, Argentina (1999)
 Colloquium of Faculty and Students, University Nacional de Rosario, Rosario, Argentina (1999)
 Faculty of the Department of Clinical Biochemistry and Pharmacology, University Nacional de Rosario, Rosario, Argentina (1999)
 Epidemiology in the Twenty-First Century Workshop, Research Triangle Park, NC (2001)
 IPCS/WHO Workshop on Toxicogenomics, Berlin, Germany (2003).

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY (1999 to Present):

Associate Editor, *NeuroToxicology* (1978-2004)
 Associate Editor, *Toxicology and Applied Pharmacology* (1995-2002)
 Advisory Board for *Toxicological Methods* (1990-2002)
 Society of Toxicology Media Resource Specialist (1998-2000)
 Co-Organizer, 17th International Neurotoxicology Conference: Children's Health and the Environment: Mechanisms and Consequences of Developmental Neurotoxicology, Little Rock, AR (1999)
 Consultant, WHO/IPCS Steering Committee to Rewrite Criteria Document on Neurotoxicology, Geneva, Switzerland (1999)
 Steering Committee, Workshop on The Use of Mechanistic Data in Risk Assessment, Research Triangle Park, NC (2003)
 Steering Committee, Workshop on Computational Toxicology, Research Triangle Park, NC (2003)
 Consultant, Use of Genomic and Proteomic Information in Risk Assessment, British Toxicological Society (2003)
 Steering Committee, Workshop on Endocrine Disruptors, Research Triangle Park, NC (2003)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY (Science only, since 1999):

Member, ORD FQPA 10x Task Force
 Member, Member, ORD RFD/RFC Technical Panel
 Member, ORD Human Health Research Strategy Document Steering Committee and Editor, Human Health Research Strategy Document
 Member, ORD Endocrine Disruptor Strategic Plan Working Group
 Member, ORD Computational Toxicology Steering Committee; Editor, *A Framework for a Research Program on Computational Toxicology at ORD*
 Member, NHEERL Endocrine Disruptor Research Steering Committee
 Lead Author, Harmonization Section of the ORD Human Health Multi-Year Plan.
 Co-Author, Conditions Research Section of the ORD Ecological Research Multi-Year Plan
 Co-Chair of the ORD Multimedia Human Health Working Group (2002-2003)
 Co-Chair of the ORD Multimedia Ecology Research Working Group (2004),
 Member of NHEERL Human Health Implementation Steering Committee; Editor of and

Contributor to NHEERL Human Health Implementation Research Strategy
 Member ORD Asthma Research Steering Committee

PUBLICATIONS (from 1999):

1. **Kodavanti, P. and Tilson, H.A.:** Neurochemical effects of environmental chemicals: In vitro and in vivo correlations on second messenger systems. *Ann NY Acad Sci.* 919: 97-105, 2000.
2. **Das, KP, Chao, S.L., White, L.D., Haines, W.T., Harry, G.J., Tilson, H.A., and Barone, S.:** Differential patterns of nerve growth factor, brain-derived neurotrophic factor and neurotrophin-3 mRNA and protein levels in developing regions of rat brain. *Neuroscience* 103: 739-761, 2001.
3. **Harry, G.J., Tyler, K., Lefebvre d'Hellencourt, C., Tilson, H.A., Maier, W.E.:** Morphological alterations and elevations in tumor necrosis factor- α , interleukin (IL)-1 α , and IL-6 in mixed glia cultures following exposure to trimethyltin: Modulation by proinflammatory cytokine recombinant proteins and neutralizing antibodies. *Toxicol. Appl. Pharmacol.* 180: 205-218, 2002.
4. **Kodavanti, P., Ward, TR, Derr-Yellin, EC, McKinney, JD, Tilson, HA:** Increased [3H]phorbol ester binding in rat cerebellar granule cells and inhibition of $^{45}\text{Ca}^{2+}$ buffering in rat cerebellum by hydroxylated poly chlorinated biphenyls. *Neurotoxicology* 191: 1-11, 2002.

BIORAPHICAL SKETCH

NAME: Rogelio Tornero-Velez

POSITION TITLE: Environmental Health Scientist

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of North Carolina	B.S.	1989	Chemistry
University of North Carolina	M.S.P.H.	1995	Environmental Sciences, School of Public Health
University of North Carolina	Ph.D.	2001	Environmental Sciences, School of Public Health

PROFESSIONAL EXPERIENCE:

9/02 – present	Postdoctoral Fellow	U.S. EPA
4/01 – 9/02	Postdoctoral Fellow	UNC-U.S. EPA Cooperative
8/93 – 12/00	Research Assitiant	University of North Carolina
4/92 – 7/93	Research Chemist	EnSys
9/89 – 9/91	Product Development Chemist	Rexham

SELECTED AWARDS AND HONORS:

Best Manuscript, Occupational Health Specialty Section, 41st Annual meeting of the Society of Toxicology, 2002
 Platform Presentation Award, Biological Monitoring Committee, American Industrial Hygiene Association, 2001
 National Institute of Environmental Health Sciences, Predoctoral Traineeship, 1999-2000
 Society for Risk Analysis Travel Award, 1996

PROFESSIONAL SOCIETIES:

Society of Toxicology, member
 Society for Risk Analysis, member

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

5. Member, ORD Aging Initiative, 2004
6. Member, ORD Pyrethroid Working Group, 2002-present
7. Assisted NCEA on risk assessment of acrylonitrile, 2004
8. Assisted OPP on risk assessment of malathion, 2003

PUBLICATIONS:

1. Lipscomb J, Barton H, **Tornero-Velez R**, Evans MV, Alcasey S, Snawder JE, Laskey J. The Metabolic Rate Constants and Specific Activity of Human and Rat Hepatic Cytochrome P450 2E1 Toward Chloroform. *Journal of Toxicology and Environmental Health* 67:1-17 (2004).
2. Luderer U, **Tornero-Velez R**, Shay T, Rappaport S, Heyer N, Echeverria D. Temporal association between serum prolactin concentration and exposure to styrene. *Occup Environ Med.* 61:325-33, (2004).
3. **Tornero-Velez R**, Ross MK, Granville C, Laskey J, Jones JP, DeMarini DM, Evans MV Metabolism and Mutagenicity of Source Water Contaminants 1,3-Dichloropropane and 2,2-Dichloropropane. *Drug Metabolism and Disposition* 32:123-131, (2004).
4. **Tornero-Velez R**, Rappaport, SM. Physiologically Modeling of the Relative Contributions of Styrene-7,8-oxide Derived from Direct Inhalation and from Styrene Metabolism upon the Systemic Dose in Humans. *Toxicological Sciences*, 64: 151-161 (2001).
5. **Tornero-Velez R**, Waidyanatha S, Echeverria D, Rappaport SM. Determination of styrene and

- styrene-7,8-oxide in human blood by gas chromatography with positive chemical ionization mass spectrometry. *Journal of Chromatography B Biomed Sci Appl*, 757(1):59-68 (2001).
6. **Tornero-Velez R.**, Waidyanatha S, Echeverria D, Rappaport SM. Measurement of styrene-7,8-oxide and other oxidation products of styrene in air. *Journal of Environmental Monitoring*, 2:111-117 (2000).
 7. **Tornero-Velez R**, Symanski E, Kromhout H, Yu RC, Rappaport, SM. Compliance versus risk in assessing occupational exposures. *Risk Analysis*, 17(3):279-92 (1997).
 8. Egeghy PP, **Tornero-Velez R**, Rappaport SM. Environmental and biological monitoring of benzene during self-service automobile refueling. *Environmental Health Perspectives* 108(12):1195-1202. (2000).
 9. Lindstrom AB, Yeowell-O'Connell K, Waidyanatha S, Golding BT, **Tornero-Velez R**, Rappaport SM. Measurement of benzene oxide in the blood of rats following administration of Benzene, *Carcinogenesis*. 18(8):1637-41 (1997).

BIOGRAPHICAL SKETCH**NAME: Nicolle S. Tulve****POSITION TITLE: Research Physical Scientist****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
Oswego State, Oswego, NY	B.S.	1988-1992	Biology
School of Public Health, State University of New York at Albany, Albany, NY	M.S.	1992-1994	Environmental Health and Toxicology
Clarkson University, Potsdam, NY	Ph.D.	1994-1999	Environmental Engineering
US EPA, Post-Doctoral Fellow, ORD/NERL	Postdoc.	1999-2000	Human Exposure Program

PROFESSIONAL EXPERIENCE :

Research Physical Scientist, HEASD/NERL/ORD, EPA

2000-Present

Detail with HED/OPP, EPA

June 2002-October 2002

Post-Doctoral Fellow, HEASD/NERL/ORD, EPA

August 1999-December 2000

SELECTED AWARDS AND HONORS:

Recipient: Special Accomplishment Recognition Award: Children's Environmental Exposure Research Study 2004

Recipient: Special Accomplishment Recognition Award: Outstanding contributions to the human exposure measurements program 2003

Recipient: Bronze Medal for Commendable Service: For contributions to developing, testing, and applying ground-breaking methods for assessing the cumulative risks of multiple pesticides sharing a common mechanism of action 2003

Recipient: Don Rennie Memorial Award for best oral presentation related to Great Lakes Research 1999

INVITED LECTURES/SYMPOSIA:Sheldon, L.S., N.S. Tulve, R.C. Fortmann, M.K. Morgan, K.W. Thomas, D.A. Whitaker, D.M. Stout, P.P. Egeghy, E.A. Cohen Hubal, L.J. Melnyk. 2004. Uncertainties associated with the use of biomarkers in developing quantitative exposure estimates. *14th Annual Conference of the International Society of Exposure Analysis*, October 17-21, 2004, Adam's Mark Hotel, Philadelphia, PA.Tulve, N.S., R.C. Fortmann, L.S. Sheldon, E.A. Cohen Hubal. 2003. Data collected in the EPA's National Exposure Research Laboratory's field measurement studies to evaluate aggregate exposure to pesticides. *23rd Annual Meeting of the Society for Risk Analysis*, December 7-10, 2003, Renaissance Harborplace Hotel, Baltimore, MD.Tulve, N.S. 2002. Exposure research to reduce uncertainties in children's health and risk assessments. *Brown Bag Seminar Series at NCCU*, October 22, 2002, Durham, NC, and *OPPT/OPP Seminar Series*, April 3, 2002, Washington, DC.**ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:**Organized symposium entitled "How Do We Optimize the Results of Children's Biological Monitoring Research?" *14th Annual Conference of the International Society of Exposure Analysis*, October 17-21, 2004, Adam's Mark Hotel, Philadelphia, PA.

Member, ExpoFacts External Review Board

Member, Risk Assessment Methodologies Technical Committee

Member, National Council for Science and the Environment's Mentoring and Advisory Panel

Reviewer, Journal of Exposure Analysis and Environmental Epidemiology

Reviewer, Journal of Children's Health

Instructor at Duke University in the Science, Technology, and Human Values Program

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member, EPA's Biomonitoring Workgroup

PUBLICATIONS:

Freeman, N.C.G., P. Hore, K. Black, M. Jimenez, L. Sheldon, N. Tulve, P.J. Liroy. Contributions of children's activities to pesticide hand loadings following residential pesticide application. *Journal of Exposure Analysis and Environmental Epidemiology*. (Advance online publication 24 March 2004; doi:10.1038/sj.jea.7500348).

Hore, P., M. Robson, N. Freeman, J. Zhang, H. Ozkaynak, N. Tulve, L. Sheldon, L. Needham, D. Barr, P.J. Liroy. Chlorpyrifos accumulation patterns for child accessible surfaces and objects and urinary metabolite excretion by children for two-weeks after crack-and-crevice application. *Environ Hlth Perspect*. (Accepted).

Tulve, N.S., J.C. Suggs, T. McCurdy, J. Moya. 2002. Frequency of mouthing behavior in young children. *Journal of Exposure Analysis and Environmental Epidemiology*. 12:259-264.

Fortmann, R.C., L.S. Sheldon, E.A. Cohen Hubal, M.K. Morgan, D.M. Stout, K.W. Thomas, N.S. Tulve, D.A. Whitaker. 2002. The EPA National Exposure Research Laboratory Children's Pesticide Exposure Measurement Program. *Indoor Air*. 4:888-893.

Berry, M.R., E.A. Cohen Hubal, R.C. Fortmann, L.J. Melnyk, L.S. Sheldon, D.M. Stout, K.W. Thomas, N.S. Tulve, D.A. Whitaker. 2001. *Draft Protocol for Measuring Children's Non-Occupational Exposure to Pesticides by all Relevant Pathways*. EPA/600/R-03/026, Office of Research and Development, Research Triangle Park, NC.

Tulve, N.S., T.C. Young. 2001. Interactions of natural colloidal material and phenanthrene in the aquatic environment. *Remediation: The Journal of Environmental Cleanup Costs, Technologies & Techniques*. 11(3):35-47.

Tulve, N.S., T.C. Young. 1999. Isolation and characterization of the natural colloidal material from the Fox River, Green Bay, WI. *Lake Reserv Manage*. 15(3):231-238.

BIOGRAPHICAL SKETCH**NAME: Vivian Turner****POSITION TITLE: Environmental Scientist****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
Howard University	B.S.	1974	Zoology
Howard University	M.S.	1979	Zoology/ (Endocrinology)

PROFESSIONAL EXPERIENCE:

2001 - Present - Environmental Scientist - EPA/ORD/NCER
 1998 - 2001 - Pesticides Toxics Media Manager - EPA/ORD/OSP
 1993 - 1998 - Biologist - EPA/ORD/OSP
 1991 - 1993 - Toxicologist - EPA/OPPTS/OPP
 1989 - 1991 - Toxicologist - EPA /OSWER
 1979 - 1989 - Biologist - EPA/OPPTS/OTS
 1978 - 1979 - Intern - FDA Toxicology Lab/Beltsville, Md

SELECTED AWARDS AND HONORS:

-Recipient of a 2004 EPA Gold Medal for EPA's Report on the Environment 2003

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

- InterAgency Workgroup for EDCs
 - Interagency Food Safety Initiative
 - Risk Assessment Consortium (RAC)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

- NCER Project Officer for Endocrine Disruptor Grants
 - EPA's Report on the Environment 2003
 - NCER Project Officer for Global Change Grants
 - Viral Coat Protein (VCP) - Plant Incorporated Pesticide (PIP) Workgroup
 - ORD's Research Coordination Team (RCT) for Pesticides and Toxics - (Team Lead)
 - Lead (Pb) Based Paint Rule Workgroup
 - Pb Hazard 403 Rule
 - Ground Water Restricted Use Rule
 - Biotechnology Final Test Rule
 - Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM)
 - People for the Ethical Treatment of Animals (PETA) Petition
 - Persistent Bioaccumulative Toxics (PBT) Initiative
 - Triazines Workgroup
 - Mevinphos Workgroup
 - DDVP Workgroup
 - US-Mexico Border Project
 - Workgroup for the Re-Registration of Vinclozolin
 - Workgroup for the Re-Registration of Biobor
 - Workgroup for the Re-Registration of Silver
 - Reference Dose (RfD)Workgroup
 - Carcinogenicity Risk Assessment Verification Endeavor (CRAVE) Workgroup
 - Risk Assessment Activities in Support of TSCA Sections 4, 5, 6, & 8
 - Workgroups supporting Toxics Release Inventory (TRI) petitions (for listing or delisting chemicals)

BIOGRAPHICAL SKETCH

NAME: John J. Vandenberg **POSITION TITLE: Associate Director for Health**

EDUCATION

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
College of Wooster, Wooster, OH	B.A.	1978	Biology
Duke University, Durham, NC	M.S.	1982	Biophysical Ecology
Duke University, Durham, NC	Ph.D.	1987	Biophysical Ecology

PROFESSIONAL EXPERIENCE:

1978 - 1980 Teacher-Naturalist, Woodland Altars Environmental Education Center, OH
 1980 - 1984 Research Assistant, School of Forestry and Environmental Studies, Duke University, Durham, NC
 1984 - 1988 Environmental Protection Specialist, Strategies and Air Standards Division, OAQPS, EPA, RTP, NC
 1988- 1989 Environmental Scientist, Repro. and Cancer Hazard Assess. Sect, Calif. Dept. Hlth Svs, Berleley, CA
 1989 - 1991 Environmental Scientist, OAQPS, EPA, RTP, NC
 1991- 1993 Director, Research to Improve Health Risk Assessments Program, HERL, EPA, RTP, NC
 1992 - 2000 Adjunct Assistant Professor, Nicholas School of the Environment, Duke University, Durham, NC
 1993 - 1996 Associate Director for Multimedia Research, HERL, EPA, RTP, NC
 1996 - 1999 Assistant Director for Air Research, HERL, EPA, RTP, NC
 1999 - 2001 National Research Program Dir. for PM, Nat. Health and Env. Effects Res. Lab, EPA, RTP, NC
 2000 - Adj Professor, Nicholas School of the Environment and Earth Sciences, Duke Univ., Durham, NC
 2001 - 2002 Director (acting) Experimental Toxicology Division, NHEERL, RTP, NC
 2002 - 2003 Director (acting) Human Studies Division, Nat. Health and Env. Effects Res. Lab, EPA, RTP, NC
 2004- Associate Director for Health, National Center for Env. Assessment, EPA, Washington, DC

Professional Societies:

Air and Waste Management Association
 International Society of Exposure Analysis
 Society for Risk Analysis

Awards and Honors:

Performance awards (>25)
 Bronze Medal for Commendable Service, EPA, OAQPS, 1985, 1987, 1992
 Bronze Medal for Commendable Service, ORD, 1992, 1997, 2004, 2004

Representative Advisory Board and Chairing Sessions:

Councilor, Society for Risk Analysis, (national elected position), 1999-2002
 Chair, Working Group on urban air quality policy alternatives, WHO-JRC-ECA workshop. Bonn, Germany, 2002.
 Member, External Scientific Advisory Committee, National Environmental Respiratory Center, Lovelace Respiratory Research Institute, Albuquerque, NM, 1998-
 Member, Aerosol Research Inhalation Epidemiological Study (ARIES) Scientific Advisory Committee, Electric Power Research Institute, Palo Alto, CA, 2000-
 Member, Scientific Advisory Panel, Mickey Leland National Urban Air Toxics Res. Center, Houston, TX, 97-2001
 Member, Advisory Committee, Harvard Center for Risk Analysis, Boston, MA 1993-1997; 2001-
 Member, Scientific Advisory Committee, Southern California Particle Center and Supersite, Los Angeles, CA, 2000-
 Member, Vulnerable Populations Research Program External Advisory Committee, California Air Resources Board, Sacramento, CA 2001-
 Member, EPA-Office of Research and Development Awards Committee 1997-2000.
 Member, EPA-Research Triangle Park Diversity committee, 1998-1999.
 Chair, Particulate matter grants selection, Science to Achieve Results program grants, National Center for Environmental Research, Research Triangle Park, NC 1996-2000
 Member, Symposium Advisory Committee, Indicators in Health and Ecological Risk Assessment, National Health

and Environmental Effects Research Laboratory, 2000.

Chair, Particulate Matter Centers Liaison Committee, Office of Research and Development, 2000.

Member, International Steering Committee, Network for Environmental Risk Assessment and Management (NERAM) Colloquium, Ottawa, Canada, 2001

Member, International Steering Committee, NERAM Colloquium, Baltimore, MD 2002.

Member, International Steering Committee, AIRNET/NERAM Colloquium, Rome, Italy, 2003.

Organizer, Particulate Matter Working Group, Air Quality Research Subcommittee, Committee on Environment and Natural Resources, Office of Science and Technology Policy, White House, Washington, DC, 1999 -

Member, Program Advisory Committee, 3rd Colloquium on Particulate Air Pollution and Human Health, 1999.

Member, Health Effects Institute Advisory Committee, Fourteenth HEI Annual Conference, 1998.

Councilor, Research Triangle Chapter of the Society for Risk Analysis (chapter elected position), 1996.

Organizer and Chair, Emerging biologically-based dose-response models for both carcinogenic and noncarcinogenic endpoints symposium, Society for Risk Analysis Annual Meeting, December, 1996.

Chair, Benchmark Dose Working Group, Risk Assessment Forum, EPA, 1993-1994.

President, New Hope chapter of National Audubon Society (elected position), 1992.

Representative Publications

Vandenberg, J.J. The role of air quality management programs in improving public health: a brief synopsis. *J. Allergy Clin Immun.* (Accepted).

Vandenberg, J.J. and W. F. Boyes. Exposure domains: role of timing, pattern and magnitude of exposure on health risks. Proceedings: Joint WHO-JRC-ECA Workshop on Role of Human Exposure Assessment in Air Quality Management. Bonn, Germany, EUR 21052. M. Krzyanowski, J. Jantunen, A. Bartonova, L. Oglesby, S. Kephapoulos, D. Kotzias (Eds). 2004.

Hruba, F., E. Fabianova, K. Koppova, **J. Vandenberg**. Childhood respiratory symptoms, hospital admissions and long-term exposure to airborne particulate matter. *J. Exposure Analysis and Environmental Epidemiology* 11: 33-40, 2001.

Brauer, J., F. Hruba, E. Mihailikova, E. Fabianova, P. Miskovic, A. Plzikova, M. Lendacka, **J. Vandenberg** and A. Cullen. Personal exposure to particles in Banska Bystrica, Slovakia. *J. Exposure Analysis and Environmental Epidemiology* 10: 478-487, 2000.

Vandenberg, J. Particulate matter: USEPA regulatory, monitoring and research programs. Proceedings: National Conference on Transportation and the Environment for the 21st Century. Transportation Research Board, National Research Council, Transportation Research Circular Number E-C028, April 2001.

Vandenberg, J. and J. Paisie. Workshop overview: fine particulate matter, air quality management, and research. WHO monograph, Institute of Environ. Epi., Singapore. 2001.

Ghio AJ, **Vandenberg J**, Soukup J, Becker S. Overview of the PM Health Effects Research Program. *In: Cotton and Other Organic Dusts. Proceedings of the Twenty-Fourth Cotton and Other Organic Dusts Research Conference. Beltwide Cotton Conferences, January 7th to 8th, 2000.* P.J. Wakelyn, R.R. Jacobs, R. Rylander, editors. National Cotton Council of America, pp. 212-219.

van Bree, L. and **J. Vandenberg**. Risk assessment and risk management of ambient air PM. *In: Proceedings of the Third Colloquium on Particulate Air Pollution and Human Health, Air Pollution Health Effects Laboratory, Univ. of California, Irvine, CA 1999.*

BIOGRAPHICAL SKETCH

NAME: <u>Bellina Veronesi</u>		POSITION TITLE <u>Health Scientist</u>	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Pittsburgh, Pennsylvania	BS	1972	Pre- medical
Rutgers University, New Jersey	M.S.	1976	Genetics
Albert Einstein College of Med	Ph.D.	1980	Neuroscien
	Post-	1981	

PROFESSIONAL EXPERIENCE:

1984-present Health Scientist: U. S. Environmental Protection Agency,
National Health Effects and Environmental Research Laboratory,
Neurotoxicology Division
Research Scientist: Northrop Corporation, Environmental Health Science

SELECTED AWARDS AND HONORS :

Scientific and Technical Achievement Award (STAA), 2nd place) A neurogenic mechanism of particulate matter inflammation 2000
EPA Honor Award-Gold award as member of NHEERL's Particulate Matter Health Research Team, 2003
Duke Provost Award: Center of Excellence on Environmental and Health Effects of Air pollutants - 2000

INVITED PRESENTATIONS:

1. Veronesi, B., A neurogenic mechanism to explain particulate matter inflammation. Interdisciplinary Seminar Series, Health Sciences Center, Oklahoma Center for Toxicology, Oklahoma City, (Sponsor Nurtan Esmen), 2000.
2. Veronesi, B., Neurobiological influences on the inflammatory susceptibility of particulate matter. NIEHS Laboratory of Pharmacology, (Sponsor John Hong), 2000
3. Veronesi, B., Physicochemical properties of inflammatory particulates. NIEHS Laboratory of Pharmacology, (Sponsor John Hong), 2001
4. Veronesi, B., Neurogenic inflammation in the airways and its relevance in particulate matter toxicity. Duke University, Nicolas School of the Environment. Lecturer Air Pollution: From Molecules to the Clinic, (Sponsor John Freeman), 2001
5. Veronesi, B., A neurogenic mechanism to explain particulate matter airway inflammation and cardiotoxicity. US EPA National Center for Environmental Assessment, 2001.
6. Veronesi, B., The autonomic connection that links PM airway inflammation and cardiotoxicity. New York University Medical Center, Nelson School of the Environment, (Sponsor. L.C.

- Chen), 2002
7. Veronesi, B., Neurogenic receptors initiate particulate matter inflammation. North Carolina State University. Toxicology Seminar Series, (Sponsor, Stacy Branch), 2002.
 8. Veronesi, B., Neurogenic inflammation in the airways. Indian Science Congress (89th session)., Lucknow University, India (Sponsor S.S. Katiyar, Vice Chancellor), December, 2002 (declined).
 9. Veronesi, B., Electrostatic charge carried on particulate matter activates V1 receptors. Symposium speaker: Vanilloid Receptors and Airway Diseases. Society of Toxicology, 2003.
 10. Veronesi, B., Neuroimmune influences underlie particulate matter inflammation. Utrecht University, Immunology Department (RITOX), NL, (Sponsor Raymond Pieters), 2000
 11. Veronesi, B., CNS pathology associated with ambient concentrated PM in APO E knock out mice. European Society of Cardiology (Sponsor GSF, Munich) 2004
 12. Veronesi, B., Electrostatic charge carried on functionalized nanoparticles initiates oxidative stress in microglia. North Carolina State University. Toxicology Seminar Series, (Sponsor, Stacy Branch), 2005.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

1. Dissertation committee-Utrecht University (RITOX), NL. Dr. I. Van den Beukel 1999
2. Reviewer-Program Project for Air Force Office of Research on JP-8 Fuel. University of Arizona, Tucson, 1999
3. Mentor-National Research Council, postdoctoral student, J. Roy, 1999-2001
4. Duke Provost Award: Center of Excellence on Environmental and Health Effects of Air pollutants -2000
5. Co-mentor- Utrecht University (RITOX), NL- pre-doctoral student, Colin de Haar, 2000-2002
6. Panelist-Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM) 2000
7. Mentor-National Research Council, post-doctoral fellow, Gwangwei Wei, 2000-2002
8. Co-mentor- National Institute of Environmental Health Science, Inter-agency Agreement. post-doctoral fellow, Michelle Block, 2000-2003
9. Consultant-NIEHS grant 1 (RO1-ES-9844). *Neurogenic mechanisms of particulate matter inflammation*, 2000-2004
10. North Carolina State University-Toxicology Program (Adjunct professor, 2004)
11. Mentor-summer students in toxicology (NCSU) O. Makwana, M. Pooler 2004.
12. Southwest Center for Environmental Research and Policy (January 2004). Research Program Reviewer for "Use of BEAS-2B cells to monitor ambient air pollution" J. Veranth, University of Utah
13. **NIEHS PROJECT REVIEW (4 YEAR) (APRIL, 2004): PROJECT-ROLE OF MICROGLIA IN INFLAMMATION-RELATED NEURODEGENERATION-MECHANISM, THERAPEUTIC INTERVENTIONS. PROJECT COORDINATOR: JOHN HONG, PH.D.**

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

2004 ALD:OPPTS/OPP:Scientist meeting to discuss COMPT TOX screening of chemical toxicants.

2004: Jack Fowle: Discussion of oxidative stress as a fast through put screening endpoint for "inerts" and anti-microbial

2004: Submission of inter-divisional proposal to study nanoparticle multi-organ toxicity: Oxidative stress mechanisms

2004: Discussions with B. Russo and other ALDs on organizing EPA workshop on nanoparticle toxicity

2003: Discussions with both NERL (Dr. Les Grant) and OAQPS (Dr. Karen Martin) administrators on new data suggestive of PM-CNS entry and oxidative stress induced neurodegeneration. Consultation with OAQPS administrator (Dr. Karen Martin) on how neurogenic mechanism will be featured in current OAQPS "regulatory decision package".

2003: Consultations on neurogenic mechanism for cardiotoxicity-NERL, OAQPS administration and scientists.

2003: Research on a 'Neurogenic hypothesis of particulate matter toxicity' discussed in the Office of Air Quality Criteria Document (OAQCD) Toxicology Chapter on particulate matter (Chapter 8). 2002: Provided editorial support for the 3rd OAQCD draft

2002: APM 179 outlines research on the neurogenic mechanism of PM airway inflammation. This is being used to solicit increased 'above infrastructure' funding for future research on neurogenic mechanisms underlying PM cardiotoxicity.

2002: Research (APM) listed in current and future MYP on PM research. Publications used in APMS since 1999 have been used to influence ORD decision making on direction of PM research and regulation.

2002: Preparation of two separate Goal 8 (Susceptible Populations) research proposals entitled: Environmental Factors that Influence Asthma (I. Gilmor, coordinator) and Oxidative Stress and Chemical Toxicity (U. Kodavanti, coordinator).

2002: NHEERL *Impact Statements* (4) describing PM research since 2002.

2001: Seminar and formal consultative discussions with OAQPS, NERL, NCEA on the neurogenic hypothesis of PM toxicity. Discussions with managers and scientists of OAQPS, NCEA and NERL (e.g., Lester Grant, Russel Weiner, Jim Raub, James McGrath, Susan Stone etc.,) on chemical/mechanical modifications of emission source PM that could hypothetically reduce the electrostatic charge on particles.

PUBLICATIONS:

Veronesi, B., Oortgiesen, M., Carter, J., and Devlin, R. Particulate matter initiates inflammatory cytokine release by activation of capsaicin and acid receptors in a human bronchial epithelial cell line. *Toxicology and Applied Pharmacology*, 154 (1): 106-115, 1999.

Veronesi, B., Carter, J. D., Devlin, R. B., Simon, S. A. and Oortgiesen, M. Neuropeptide stimulates the release of inflammatory cytokines in a human bronchial epithelial cell line. *Neuropeptides*, 33 (6): 447-456, 1999.

Oortgiesen, M., Veronesi, B. Eichenbaum, G., and Simon, S.A. Residual oil fly ash (ROFA) and negatively charged synthetic polymers activate bronchial epithelial cells and nociceptive neurons. *American Journal of Physiology: Lung cellular and Molecular Physiology*, 278: L683-L695. 2000.

Veronesi, B., Oortgiesen, M., Roy, J., Carter, J.D., Simon, S. A., and Gavett, S.H. Vanilloid (capsaicin) receptors influence inflammatory sensitivity in response to particulate matter. *Toxicology and Applied Pharmacology*, 169: 66-76, 2000.

Veronesi, B., Oortgiesen, M., Neurogenic inflammation and particulate matter air pollutants. *NeuroToxicology*, 22: 795-810, 2001.

Veronesi, B., de Haar, C., Roy, J. and Oortgiesen, M. Particulate matter inflammation and receptor sensitivity are target cell specific. *Inhalation Toxicology* 14: 159-183, 2002.

Veronesi, B., de Haar, C., Lee, L., and Oortgiesen, M. The surface charge of particulate matter relates to cytokine release in human bronchial epithelial cells (BEAS-2B). *Toxicology and Applied Pharmacology*, 178(3): 144-154, 2002.

Veronesi, B., Wei, G., Zeng, J., Oortgiesen, M. Electrostatic charge activates inflammatory vanilloid (VR1) receptors. *NeuroToxicology*, 24: 463-473, 2003.

Block, M.L. Wu, Z. Pei, G. Li, T. Wang, L. Qin, B. Wilson, J. Yang, J.S. Hong and B.Veronesi. Diesel exhaust particles cause microglia-mediated dopaminergic toxicity in culture. *The FASEB Journal* (18(13):1618-20, 2004.

Wu, X. Block, ML, Zhang,W,. Pei, Z., Qin, L., Wilson, B, Zhang, Z., Veronesi, B., Hong, J. The role of microglia in paraquat induced dopaminergic neurotoxicity. *Antioxidants and Redox Signaling* (in press)

Veronesi, B. Makwana, O., Pooler, M., and Chen, LC. Effects of subchronic exposure To CAPs in Apo E^{-/-} Mice: VII. Degeneration of dopaminergic neurons. *Inhalation Toxicology* (in press)

Veronesi, B., Critical update on cardiovascular and neurological effects of fine and ultrafine particles: neurodegeneration in transgenic mice exposed to particulate matter: influence of oxidative stress. *Particle and Fiber Toxicology* (in press)

Ehrich, M and Veronesi, B. *In Vitro Neurotoxicology* . Nervous System Toxicology, . pp 32-51. In: *Neurotoxicology* (2nd edition) edited by Tilson, HA and Harry, J., Taylor and

Francis, Philadelphia.1999

Oortgiesen, M, Simon, S.A. and Veronesi, B. A Neurogenic Explanation of Particulate Matter Inflammation In The Airways. pp 26-48. In: Proceedings of The Third Colloquium On Particulate Air Pollution and Human Health, edited by Phalen, R and Bell Y., University of California Press, Irvine, 1999.

Veronesi, B. and Ehrlich M. Cell Culture Models of Environmental Neurotoxicity. In: Experimental *In Vitro* Neurotoxicology. pp 239-268. edited by Pentreath, V., Taylor and Francis, London, 1999.

Veronesi, B. *In Vitro* Evaluation of the Effects of Acute Toxicity on the Respiratory System, Chapter 4.9 In: *In vitro* methods for acute toxicity: Proceedings of the International Workshop on *In Vitro* Methods for Assessing Acute Systemic Toxicity, Washington, 2001.

Reilly CA, Veranth, J., Veronesi, B., and Yost, GS. Vanilloid Receptors in the Respiratory Tract; *Toxicology of the Lung, Fourth Edition*. Editor, Donald E. Gardner, in press, March 2005)

Veronesi, B., The Role of Oxidative Stress In Susceptible Populations. *In Health Risk Assessment and Chemical Hazard Prediction* (CRC Reviews in press, May 2005).

BIOGRAPHICAL SKETCH

NAME: Stephen J. VesperPOSITION TITLE: Biologist**EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
Xavier University, Cincinnati, OH	B.S.,	1968-	Biology
Ohio State University, Columbus, OH	M.S.	1973	PL. Pathology
Ohio State University, Columbus, OH.	PhD.	1973-	Environmental
		1975	Biology Program
		1976-	
		1983	

PROFESSIONAL EXPERIENCE :

Biologist, US EPA, National Exposure Research Laboratory, Cincinnati, Ohio	1998-Present
Research Assistant Professor, Civil and Environmental Engineering, University of Cincinnati, Cincinnati, Ohio	1990-1997
Senior Microbiologist, Biotechnology Group, Henkel-Emery Corporation, Cincinnati, Ohio	1987-1990
Research Microbiologist, Battelle Columbus Division, Columbus, Ohio	1983-1987

SELECTED AWARDS AND HONORS :

US EPA Incentive Award-Special Act or Service Award (1999)
 Scientific and Technology Achievement Award (2000)
 Federal Laboratory Consortium Award for Excellence in Technology Transfer (2001)
 US EPA Gold Medal for Exceptional Service (2001)
 US EPA Bronze Medal for Commendable Service (2002)

INVITED LECTURES/SYMPOSIA (Selected presentations from the last 3 years):

- 1 Rapid Identification and Quantification of Molds, Healthy Office Symposium, Bishophthorp Palace, York, UK June 16, 2002
- 2 From the Bench to Commercialization, The Cincinnati Federal Environmental Chapter of Sigma Xi. September 12, 2002.
- 3 A Revolution in Mold Identification and Enumeration, Aerias Symposium, Atlanta GA, October 17, 2002
- 4 A Revolution in Mold Identification and Enumeration, Building Environment Council of Ohio Symposium, Columbus, OH, April 10, 2003
- 5 Why it is Critical to Speciate Molds, American Industrial Hygiene Association Annual Meeting. Dallas, TX, May 14, 2003
6. Possible Role of Fungal Hemolysins in Sick Building Syndrome, Building Environment and Thermal Envelope Council Symposium, San Diego, CA, October 30, 2003
- 7 Fungal Hemolysins, Seminar in Department of Microbiology and Immunology, The University of Texas Health Sciences Center, San Antonio, TX, December 4, 2003
- 8 Toward the Development of a Mold Standard, PittCon, Chicago, IL, March 8, 2004
- 9 Mold Exposures, EPA Regional Invited Seminar, Dallas, Texas, June 2004
- 10 Standardized Mold Analysis Using QPCR, ASTM Conference on Mold, Boulder Colorado, July 28, 2004
- 11 The Challenge of Mold for the US Army, Force Health Protection, 7th Annual Conference, Albuquerque, NM, August 10, 2004
- 12 Cutting Edge Research in Quantifying Mold Levels, Mealey's Construction Defect and Mold Litigation Conference, Las Vegas, NV, December 9-10, 2004

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

"Residential Toxic Mold" - Case Western Reserve University, 1998
 "An Introduction to Microbial Risk Assessment and Risk Management" - US EPA, Cincinnati, Ohio 1998
 "Asthma: The Regional Science Issues"- U.S. EPA, Washington, D.C. 1999
 "CRADA/Patent Licensing Agreements and the EPA: An Overview" Cincinnati, 1999
 Scientist to Scientist Workshop, "Indoor Environments Research Workshop" RTP 1999.
 "Reevaluation of Pulmonary Hemorrhage/Stachybotrys Relationship" CDC, Atlanta GA, 2000
 "Molds in the Indoor Environment" Ohio Chapter of the Society for Risk Analysis, Cin., Ohio June 11, 2002
 "Children's Health Protection" US EPA, Washington D. C., May 27-29, 2003.
 "Scientist-to- Scientist Meeting on Indoor Environments" RTP, N.C. September 3-4, 2003
 "Indoor Air Quality Problems and Engineering Solutions" RTP, N.C. July 21-23, 2003, Session Chair
 "Environmental Influences on the Induction and Incidence of Asthma" RTP, N. C. October 18-19, 2004

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY :

Project Officer for Cooperative Agreement with Case Western Reserve University (1999-2004)
 Coordinator of Successful Grant Application to the NCEA "Children at Risk Program" (1999-2004)
 Project Officer on Inter-Agency Agreement with the Department of Energy (2003-2004)
 Developed successful "Homeland Security" proposal (2003-2004)
 Project Officer on Inter-Agency Agreement with the Veterans Administration (2002-2004)
 Licensing and CRADAs with 15 companies in US, UK and EU on the use of QPCR Technology
 Peer Reviewer for many Journals including Canadian Journal of Microbiology and Indoor Air

PUBLICATIONS (Last 5 years):

1. Vesper, S. J., Dearborn, D. G., Yike, I., Sorenson, W. G., Haugland, R. A. Hemolysis, Toxicity and RAPD Analysis of *Stachybotrys chartarum* Strains. **Applied and Environmental Microbiology**. 65:3175-3181. 1999
2. Haugland, R. A., Vesper, S. J., Wymer, L.J. Quantitative Measurement of *Stachybotrys chartarum* conidia Using Real Time Detection of PCR Products with the TaqMan™ Fluorogenic Probe System. **Molecular and Cellular Probes**. 13:329-340. 1999
3. Vesper, S. J., Dearborn, D. G., Yike, I., Allan, T., Sobolewski, J., Hinkley, S. F., Jarvis, B. B., Haugland, R. A. Evaluation of *Stachybotrys chartarum* in the House of an Infant with Pulmonary Hemorrhage: Quantitative Assessment Before, During and After Remediation. **Journal of Urban Health**. 77:68-85. 2000
4. Vesper, S. J., Dearborn, D. G., Elidemir, O., Haugland, R. A.. Quantification of Siderophore and Hemolysin from *Stachybotrys chartarum* Strains, Including a Strain Isolated from the Lung of a Child with Pulmonary Hemorrhage and Hemosiderosis. **Applied Environmental Microbiology**. 66:2678-2681. 2000
5. Vesper, S. J. Magnuson, M. L., Dearborn, D. G., Yike, I., Haugland, R. A. Initial Characterization of the Hemolysin Stachylysin from *Stachybotrys chartarum*. **Infection and Immunity**. 69:912-916. 2001
6. Haugland, R. A., Vesper, S. J., Harmon, S. M. Phylogenetic Relationships of *Memnoniella* and *Stachybotrys* Species Inferred from



- Ribosomal DNA Sequences and Evaluation of Morphological Features for Memnoniella Species Identification. **Mycologia**. 93:54-65. 2001
- 7 Roe, J. D, Haugland, R. A., Vesper, S. J., Wymer, L. J. Quantification of Stachybotrys chartarum Conidia in Indoor Dust Using Real Time, Fluorescent Probe-based Detection of PCR Products. **Journal of Exposure Analysis and Environmental Epidemiology**. 11:1-9. 2001
- 8 Vesper, S. J. and Vesper, M. J. Stachylysin may be a Cause of Hemorrhaging in Humans Exposed to Stachybotrys chartarum. **Infection and Immunity**.70:2065-2070. 2002
- 9 Haugland, R. A., Brinkman, N., Vesper, S. J. Evaluation of rapid DNA extraction methods for the quantitative detection of fungal cells using real time PCR analysis. **Journal of Microbiological Methods**. 50:319-323. 2002
- 10 Viana, M. E., Coates, N. H., Gavett, S. H., Selgrade, M J. K., Vesper, S. J., Ward, M. D. W. An extract of Stachybotrys chartarum causes allergic asthma-like response in a BALB/c mouse model. **Toxicological Sciences**. 70:98-109. 2002
- 11 Yike, I., Vesper, S. J., Tomashefsky, J.F., Dearborn, D. G. Germination, viability and clearance of Stachybotrys chartarum in the lungs of infant rats. **Mycopathologia**. 156:67-75. 2003
- 12 Gregory, L., Rand, T. G., Dearborn, D. G., Yike, I. and Vesper, S. J. Immunocytochemical localization of stachylysin in Stachybotrys chartarum spores and spore-impacted mouse and rat lung tissues. **Mycopathologia** 156:76-85. 2003
- 13 Brinkman, N. E., Haugland, R. A., Wymer, L. J., Byappanahalli, M., Whitman, R. L., Vesper, S. J. Evaluation of a Rapid, Quantitative Real-Time PCR Method for Cellular Enumeration of Pathogenic Candida Species in Water. **Applied and Environmental Microbiology**. 69:1775-1782. 2003
- 14 Li, D-W, Yang, C. S., Haugland, R. A., Vesper, S. J. A new species of Memnoniella. **Mycotaxon** 85:253-257. 2003
- 15 Van Emon, J. M., Reed, A.W., Yike, I., Vesper, S. J. ELISA Measurement of Stachylysin™ in serum to quantify human exposures to the indoor mold Stachybotrys chartarum. **Journal of Occupational and Environmental Medicine**. 45:582-591. 2003
- 16 Haugland, R. A., Varma, M., Wymer, L. J., Vesper, S. J. Quantitative PCR of Selected Aspergillus, Penicillium and Paecilomyces Species. **Systematic and Applied Microbiology**. 27:198-210. 2004
- 17 Morrison, J., Yang, C., Lin, K.-T., Haugland, R.A., Neely, A. N., Vesper, S. J. Monitoring Aspergillus species by quantitative PCR during construction of a multi-story hospital building. **Journal of Hospital Infection**. 57:85-87. 2004
- 18 Meklin, T., Haugland, R.A., Reponen, T., Varma, M., Lummus, Z., Bernstein, D., Wymer, L. J. Vesper, S. J. Quantitative PCR analysis of house dust can reveal abnormal mold conditions. **Journal of Environmental Monitoring**. 6:615-620. 2004
- 19 Neely, A. N., Gallardo, V., Barth, E, Haugland, R. A., Warden, G., Vesper, S. J. Rapid monitoring by QPCR for pathogenic Aspergillus during carpet removal from a hospital. **Infection Control and Hospital Epidemiology**. 25:350-352. 2004
- 20 Vesper, S. J., Varma, M., Wymer, L. J., Dearborn, D. G., Sobolewski, J., Haugland, R. A. Quantitative PCR analysis of fungi in dust from homes of infants who developed idiopathic pulmonary hemorrhaging. **Journal of Occupational and Environmental Medicine**.46:596-601. 2004

BIOGRAPHICAL SKETCH**NAME:** Alan F. Vette**POSITION TITLE:** Research Physical Scientist**EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
West Virginia University, Morgantown, WV	B.A.	1987-1991	Chemistry
University of Michigan, Ann Arbor, MI	M.S.	1992-1995	Environmental Health Sciences
	Ph.D.	1995-1998	
University of Nevada Reno, Reno, NV	Postdoc.	1998-1999	
U.S. Environmental Protection Agency, RTP, NC	Postdoc.	1999-2000	

PROFESSIONAL EXPERIENCE:

Research Physical Scientist, NERL, ORD EPA	Dec. 2000 - Present
Postdoctorate Research Scientist, NERL, ORD EPA	Aug. 1999 - Dec. 2000
Postdoctorate Research Scientist, University of Nevada Reno	Sept. 1998 - Aug. 1999
Graduate Student Research Assistant, University of Michigan	Sept. 1992 - Sept. 1998
Research Assistant, West Virginia University	June 1991 - July 1992

SELECTED AWARDS AND HONORS :

Recipient: Bronze Medal for recognition of the NERL/NHEERL Panel Studies research team (2002).
 Recipient: Special Commemorative Award for September 11 Activities for Air Monitoring/Exposure Assessment Response Team, ORD (2002).
 Recipient: Commemorative Honor Award for air monitoring support in the World Trade Center disaster recovery (2002).

INVITED LECTURES/SYMPOSIA:

1. Environmental monitoring and modeling associated with national emergencies - experiences gained from the World Trade Center. Presented at: Science Forum 2003, Washington, DC, May 5-7, 2003.
2. Ambient air monitoring at Ground Zero and Lower Manhattan following the collapse of the World Trade Center. Presented at: Science Forum 2003, Washington, DC, May 5-7, 2003.
3. Environmental monitoring and modeling associated with national emergencies - experiences gained from the World Trade Center. Presentation to Assistant Administrator, Office of Research and Development, February, 2002.
4. Concentrations and speciation of PM at Ground Zero and Lower Manhattan following the collapse of the WTC. International Society of Exposure Analysis 2002 annual conference, Vancouver, Canada, August 11-15, 2002.
5. Gaseous co-pollutants associated with particulate matter-results from the NERL RTP pm panel study. Presented at: International Society of Exposure Analysis 2002 Conference, Vancouver, Canada, August 11-15, 2002.
6. Concentrations and composition of PM at Ground Zero and Lower Manhattan following the collapse of the WTC. American Association for Aerosol Research 2002 Annual Conference, Charlotte, NC, October 7-11, 2002.
7. Polycyclic aromatic hydrocarbons (PAHs) and other semi-volatile organic compounds collected in New York City in response to the events of 9/11. American Association for Aerosol Research 2002 Annual Conference, Charlotte, NC, October 7-11, 2002.
8. Summary findings from the U.S.EPA's particulate matter panel studies. Presented at International Society of Exposure Analysis 2002 Conference, Vancouver, Canada, August 11-15, 2002.
9. Gaseous co-pollutants associated with particulate matter-results from the NERL RTP pm panel study. Presented at: International Society of Exposure Analysis 2002 Conference, Vancouver, Canada, August 11-15, 2002.
10. Particle Size Distributions from Select Residences Participating in the NERL RTP PM Panel

- Study. Presented at the 11th annual conference of the International Society of Exposure Analysis, Charleston, SC, November 4-8, 2000.
11. Comparisons of dual SMPS-APS systems to measure indoor-outdoor particle size distributions. Presented at the 10th annual conference of the International Society of Exposure Analysis, Monterey, CA, October 24-27, 2000.
 12. Characterization of indoor-outdoor aerosol concentration relationships during the Fresno PM exposure studies. Presented at PM2000: Particulate Matter and Health, Charleston, SC, January 24-28, 2000.
 13. Deposition and emission of gaseous mercury to and from Lake Michigan during the Lake Michigan Mass Balance Study (July, 1994-October, 1995). Presented at the Environmental and Resource Sciences Seminar, University of Nevada, Reno, April 8, 1999.
 14. Endocrine disruptors in the environment. Presented at the Regional and Global Issues in the Environmental Sciences, Capstone Seminar Series (ERS 467/667), University of Nevada, Reno, March 4, 1999.
 15. Mercury in aquatic ecosystems. Presented in Biogeochemical Cycles (ERS 791), University of Nevada, Reno, February 10, 1999.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Participant: Workshop on Black Carbon Emissions and Climate Change, San Diego, CA, October 13-15, 2004.

Co-chair, Session on Sampling, Analysis and Health Effects of WTC Aerosols, American Association for Aerosol Research 2002 Annual Conference, Charlotte, NC, October 7-11, 2002.

Chair, Session on Contaminant Exposures and Health Effects Associated with the World Trade Center Disaster, International Society of Exposure Analysis 2002 annual conference, Vancouver, Canada, August 11-15, 2002.

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Member, science council for HEASD air research (2004-present)

Co-chair, ORD workshop on Environmental monitoring and modeling associated with national emergencies - experiences gained from the World Trade Center (2002)

PUBLICATIONS:

Pleil, J.D.; Vette, A.F.; Johnson, B.A.; and Rappaport, S.M. (2004) Air levels of carcinogenic polycyclic aromatic hydrocarbons. **Proc Natl Acad Sci U S A**, 101(32), 11685-8.

Yiin, L-M.; Millette, J.R.; Vette, A.; Ilacqua, V.; Quan, C.; Gorczynski, J.; Kendall, M.; Chen, L.C.; Weisel, C.P.; Buckley, B.; Yang, I.; and Liroy, P. (2004) Comparisons of the dust/smoke particulate that settled inside the surrounding buildings and outside on the streets of southern New York City after the collapse of the World Trade Center, 11 September 2001. **J. Air & Waste Manage. Assoc.**, 54(5), 515-528.

Olson, D.A.; Norris, G.A.; Landis, M.S.; and Vette, A.F. (2004) Chemical characterization of ambient particulate matter near the World Trade Center: elemental carbon, organic carbon and mass reconstruction. **Environ. Sci. Technol.**, 38, 4465-4473.

Vette, A.; Gavett, S.; Perry, S.; Heist, D.; Huber, A.; Lorber, M.; Liroy, P.; Georgopoulos, P.; Rao, ST; Petersen, W.; Hicks, B.; Irwin, J.; and Foley, G. (2004) Environmental research in response to 9/11 and Homeland Security. **Environ. Man.**, 2004, February, 14-22.

Vette, A.; Seila, R.; Swartz, E.; Pleil, J.; Webb, L.; Landis, M.; Huber, A.; and Vallero, D. (2004) Air pollution measurements in the vicinity of the World Trade Center û Summary of measurements conducted by EPA-ORD. **Environ. Man.**, 2004, February, 23-26.

Pleil, J.D.; Vette, A.F.; and Rappaport, S.M. (2004) Assaying particle-bound polycyclic aromatic hydrocarbons (PAH) from archived PM_{2.5} filters. **J. Chromatogr. A**, 1033, 9-17.

Williams, R.; Suggs, J.; Rea, A.; Leovic, K.; Vette, A.; Croghan, C.; Sheldon, L.; Rodes, C.; Thornburg, J.; Ejire, A.; Herbst, M.; and Sanders, W. (2003) The Research Triangle Park particulate matter panel study: PM mass concentration relationships. **Atmos. Environ.**, 37, 5349-5363.
Vette, A. F.; Landis, M. S. and Keeler, G. J. (2002) Deposition and emission of gaseous mercury to and from Lake Michigan during the Lake Michigan Mass Balance Study (July 1994–October 1995). **Environ. Sci. Technol.**, 36, 4525-4532.

Landis, M. S.; Vette, A. F.; and Keeler, G. J. (2002) Atmospheric mercury in the Lake Michigan basin: influence of the Chicago/Gary urban area. **Environ. Sci. Technol.**, 36, 4508-4517.

Zhang, H.; Lindberg, S. E.; Barnett, M. O.; Vette, A. F. and Gustin, M. S. (2002) Dynamic flux chamber measurement of gaseous mercury emission fluxes over soils. Part 1: simulation of gaseous mercury emissions from soils using a two-resistance exchange interface model. **Atmos. Environ.**, 36(5), 835-846.

Lindberg, S. E.; Zhang, H.; Vette, A. F.; Gustin, M. S.; Barnett, M. O. and Kuiken, T. (2002) Dynamic flux chamber measurement of gaseous mercury emission fluxes over soils. Part 2: effect of flushing flow rate and verification of a two-resistance exchange interface simulation model. **Atmos. Environ.**, 36(5), 847-859.

Vette, A. F.; Rea, A. W.; Lawless, P. A.; Rodes, C. E.; Evans, G.; Highsmith, V. R. and Sheldon, L. (2001) Characterization of indoor-outdoor aerosol concentration relationships during the Fresno PM exposure studies. **Aerosol Sci. Tech.**, 34, 118-126.

Rodes, C. E.; Lawless, P. A.; Evans, G. F.; Sheldon, L. S.; Williams, R. W.; Vette, A. F.; Creason, J. P.; and Walsh, D. (2001) The relationships between personal PM exposures for elderly populations and indoor and outdoor concentrations for three retirement center scenarios. **J. Expos. Anal. Environ. Epidemiol.**, 11(2), 103-115.

Lindberg, S. E.; Vette, A. F.; Miles, C.; and Schaedlich, F. (2000) Mercury speciation in natural waters: Measurement of dissolved gaseous mercury with a field analyzer. **Biogeochemistry**, 48, 237–259.

Gustin, M. S.; Lindberg, S. E.; Austin, K.; Coolbaugh, M.; Vette, A. F. and Zhang, H. (2000) Assessing the contribution of natural sources to regional atmospheric budgets. **Sci. Tot. Environ.**, 259, 61-71

Lindberg, S.E.; Zhang, H.; Gustin, M.; Vette, A.; Marsik, F.; Owens, J.; Casimir, A.; Ebinghaus, R.; Edwards, G.; Fitzgerald, C.; Kemp, J.; Kock, H.H.; London, J.; Majewski, M.; Poissant, L.; Pilote, M.; Rasmussen, P.; Schaedlich, F.; Schneeberger, D.; Sommar, J.; Turner, R.; Wallschlaeger, D.; Xiao, Z. (1999) Increases in mercury emissions from desert soils in response to rainfall and irrigation. **J. Geophys. Res.** 104, 21879–21888.

Gustin, M. Sexauer; Marsik, F.; Lindberg, S.; Casimir, A.; Ebinghaus, F.; Edwards, G.; Fitzgerald, C.; Kemp, J.; Kock, H.; Leonard, T.; London, J.; Majewski, M.; Owens, J.; Pilote, M.; Poissant, L.; Rasmussen, P.; Schaedlich, F.; Schneeberger, D.; Schroeder, W.; Sommar, J.; Turner, R.; Vette, A.; Wallschlaeger, D.; Xiao, Z. (1999) The Nevada STORMS project: measurement of mercury emissions from naturally enriched surfaces. **J. Geophys. Res.**, 104, 21831–21844.

BIOGRAPHICAL SKETCH**NAME: Douglas C. Wolf****POSITION TITLE: Veterinary Medical Officer****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
University of Missouri-Columbia, MO	DVM	1981	Veterinary Medicine
Purdue University, West Lafayette, IN	PhD	1991	Veterinary Pathology

PROFESSIONAL EXPERIENCE:

2000-Present Adjunct Associate Professor, School of Medicine, University of North Carolina, Chapel Hill, NC

2000-Present Adjunct Associate Professor, Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC

1999-Present Veterinary Medical Officer USEPA, ORD, NHEERL, ECD, CBB

1999-1999 Three Months as Acting Branch Chief USEPA, ORD, NHEERL, ECD, BPB

1997-1999 Veterinary Medical Officer, USEPA, ORD, NHEERL, ECD, BPB

1996-Present Adjunct Professor, College of Veterinary Medicine, Virginia Polytechnic Institute, Blacksburg, VA

1993-Present Adjunct Associate Professor, College of Veterinary Medicine, North Carolina State University, Raleigh, NC

1991-1997 Scientist, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.

1987-1991 Graduate Instructor, Veterinary Pathology, Purdue University, West Lafayette, IN.

1983-1987 Associate Veterinarian, Olin Animal Hospital, St. Paul, MN.

1982-1983 Relief Veterinary Services, Minneapolis, MN.

1981-1982 Associate Veterinarian, Norwood Veterinary Clinic, Norwood, MN.

SELECTED AWARDS AND HONORS:

Who's Who in American Colleges and Universities, 1981; Phi Zeta Veterinary Honor Society, 1989; Board of Publications Award for the Best Paper in *Fundamental and Applied Toxicology* for 1994; USEPA Bronze Medal 7/98 for The bromate group project for the Office of Water.

INVITED LECTURES/SYMPOSIA:

Carcinogenicity and risk of haloacetic acids, bromate and chlorate. Health Effects Workshop. Washington DC, 1999

Interpreting Pathology for Carcinogen Risk Assessment. Society of Toxicology annual meeting, Nashville, TN, 2002

Application of Genomics in Chemical Carcinogenesis and Risk Assessment. Virginia-Tech, Blacksburg, VA, 2002

Application of Genomics in Toxicity and Carcinogenicity Evaluation and Risk Assessment Health Canada, Ottawa, Canada, 2002

Computational Toxicology and Genomics: The Next Wave of Drinking Water Research. US EPA Science Forum. Washington DC, 2003

Interpreting Spontaneous Renal Lesions in Safety and Risk Assessment: American College of Veterinary Pathologists, Banff, Canada, 2003

The Use of Genomics in Risk Characterization and Safety Assessment: Health Canada, Ottawa, Canada, 2003

Incorporating Systemic Toxicity Testing into Agricultural Chemical Safety Assessment: Society for Risk Analysis, Baltimore, MD, 2003

Peer Review and Pathology Assessment of Perchlorate-Induced Lesions. Committee to assess

the health implications of perchlorate ingestion, National Academy of Sciences, Irvine, CA, 2003.

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

American Association of Cancer Researchers; American Veterinary Medical Association; Society of Toxicologic Pathology; Society of Toxicology.

Pathology Working Groups, the NTP/NIEHS, Research Triangle Park, NC, 1991-present; Pathology Working Group, the FDA/CDER, Research Triangle Park, NC, 11/01; The Copernicus Group, Independent Review Board, 1996 to 2000; Peer Review, Toxicology Excellence for Risk Assessment, 1997-present; Program Review, CDC/NIOSH, Health Effects Lab Div, Morgantown, WV, 5/98; Review Ethylene Glycol Risk Assessment, Health Canada. 8/01; Councilor, Toxicologic and Exploratory Pathology Specialty Section of SOT, 2002-2005; Agricultural Chemical Safety Assessment Project. ILSI/HESI, 2002-2003; Society of Toxicologic Pathologists, Symposium committee 1996-2000; Society of Toxicologic Pathologists, Continuing Education Committee, chair 2000-2003.

Editorial Board: *Toxicologic Pathology* - 1998-2002; Editorial Board: *Pathology of the Mouse Reference and Atlas*, Cache River Press, Vienna, IL, 1999; Associate Editor: *Toxicologic Pathology* - 2002 –

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

Organizing Committee member for the 1999 NHEERL open house; NHEERL Drinking Water Research Implementation Team, 2001-2003; NHEERL Synergy Committee, Division representative and co-chair. 2002-2003; ORD Computational Toxicology Framework Design Team, 2002-2003; ORD Computational Toxicology Implementation Planning Team, 2003-; Toxicological Extrapolation Across Species: Collaborative Opportunities and Needs in NHEERL, 12/99; Perchlorate Environmental Contamination: Toxicological Review and Risk Characterization Based on Emerging Information. NCEA-1-0503, 2002; Summary report of the colloquium on the use of medaka in risk assessment processes. U.S. Environmental Protection Agency, Risk Assessment Forum, Washington, DC, . 01 Jan 2003.

PUBLICATIONS (1998 to present, 25 out of a total of 88 publications):

1. Medinsky MA, Wolf DC, Cattley RC, Wong B, Janszen DB, Farris GM, Wright GA, Bond JA: Effects of a thirteen-week inhalation exposure to ethyl tertiary butyl ether on Fisher-344 rats and CD-1 mice. *Toxicol Sci* 51:108-118, 1999
2. Hard GC, Boorman GA, and Wolf DC : Re-evaluation of the chloroform 2-year drinking water bioassay in Osborne-Mendel rats supports renal tubule injury as the mode of action underlying the renal tumor response. *Toxicol Sci* 53:237-244, 2000.
3. Crosby LM, Morgan KT, Gaskill B, Wolf DC, DeAngelo AB: Origin and distribution of potassium bromate-induced testicular and peritoneal mesotheliomas. *Toxicol Pathol* 28:253-266, 2000.
4. Hamm JT, Sparrow BR, Wolf DC, Birnbaum LS: In Utero and lactational exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin alters postnatal development of seminal vesicle epithelium.

Toxicol Sci 54: 424-430, 2000.

5. Bordelon NR, Donnelly KC, King LC, Wolf DC, Reeves WR, George SE: Bioavailability of the genotoxic components in coal tar contaminated soils in Fischer 344 rats. *Toxicol Sci* 56:37-48, 2000.
6. Wolf DC, Goldsworthy TL, Donner M, Harden R, Janszen D, David CS, Everitt JI: Promotion does not increase multiplicity of hereditary renal tumors in Eker rats. *Carcinogenesis* 21:1553-1558, 2000
7. Hooth MJ, DeAngelo AB, George MH, Gaillard ET, Boorman GA, Wolf DC: Sodium chlorate results in a concentration-dependent increase in rat thyroid follicular cell hyperplasia following subchronic exposure in drinking water. *Toxicol Pathol* 29:250-259, 2001
8. Wolf DC: Quantitative Toxicologic Pathology-Methods and Interpretation. Session Summary. *J Toxicol Pathol*, 14(4):319-320, 2001
9. Hooth MJ, DeAngelo AB, George MH, Boorman GA, Wolf DC: Sodium chlorate treatment results in a dose-dependent increase in rat thyroid follicular cell hyperplasia following subchronic exposure in drinking water. In Microbial Pathogens and Disinfection By-products in Drinking Water. Gunther F. Craun, Fred S. Hauchman, and Denise E. Robinson. Eds., ILSI Press, Washington, DC, pp.581-585, 2001.
10. Hester SD, Benavides G, Sartor M, Yoon L, Wolf DC, Morgan KT: Normal gene expression in male F344 rat nasal transitional and respiratory epithelium. *Gene* 285:301-310, 2002
11. Shiao YH, Kamata SI, Li LM, Hooth MJ, Li LM, DeAngelo AB, Anderson LM, Wolf DC: Mutations in the VHL gene from potassium bromate-induced rat clear cell renal tumors. *Cancer Lett* 187:207-214, 2002
12. Hooth MJ, McDorman KS, Hester SD, George MH, Brooks LR, Swank AE, Wolf DC: The carcinogenic response of Tsc2 mutant Long-Evans (Eker) rats to a mixture of drinking water disinfection by-products was less than additive. *Toxicol Sci* 69: 322-331, 2002
13. McDorman KS and Wolf DC: Use of the spontaneous Tsc2 knockout (Eker) rat model of hereditary renal cell carcinoma for the study of renal carcinogens. *Toxicol Pathol* 30:675-680, 2002
14. Seely JC, Haseman J, Nyska A, Wolf DC, Everitt JI, Hailey JR: The effect of chronic progressive nephropathy on the incidence of renal tubule neoplasms in the F344 rat. *Toxicol Pathol* 30:681-686, 2002
15. Nyska A, Hester SD, Cooper RL, Goldman J, Stoker T, House D, Wolf DC: Single or group housing-altered hormonal physiology and affected pituitary and interstitial cell kinetics. *J Toxicol Sci* 27:449-457, 2002
16. McDorman KS, Chandra S, Hooth MJ, Hester SD, Wolf DC: Induction of transitional cell hyperplasia in the urinary bladder and aberrant crypt foci in the colon of rats treated with individual and a mixture of drinking water disinfection by-products. *Toxicol Pathol* 31:235-242, 2003
17. McDorman KS, Hooth MJ, Starr TB, Wolf DC: Analysis of preneoplastic and neoplastic renal lesions in Tsc2 mutant Long-Evans (Eker) rats following exposure to a mixture of drinking water disinfection by-products. *Toxicology* 187:1-12, 2003.

18. Hester SD, Benavides GB, Yoon L, Morgan KT, Zou F, Barry W, Wolf DC: Formaldehyde-induced gene expression in F344 rat nasal respiratory epithelium. *Toxicology* 187:13-24, 2003
19. George SE, Brooks LR, Bailey KC, Hooth MJ, **Wolf DC**, Nelson GM: Changes in Cecal Microbial Metabolism of Rats Induced by Individual and a Mixture of Drinking Water Disinfection By-Products. *Cancer Lett* 204:15-21, 2004.
20. Sen B, **Wolf DC**, Hester SD: The effect of an inherited cancer susceptibility gene knockout mutation in the transcriptional profile of the kidney in Tsc2 mutant Long-Evans (Eker) rats. *Mutat Res-Fundam Mol Mech Mutag* 549:213-224, 2004 (invited)
21. Kavlock R, Ankley GT, Collette T, Francis E, Hammerstrom K, Fowle J, Tilson H, Toth G, Schmieder P, Veith GD, Weber E, **Wolf DC**, Young D: Computational Toxicology: Framework, Partnerships, and Program Development: A Workshop Report. *Repro Toxicol* (in press)
22. **Wolf DC**, Mann PC: Confounders in interpreting pathology for safety and risk assessment. *Toxicol Appl Pharmacol* (invited, in press)
23. Tietge JE, Holcombe GW, Flynn KM, Kosian PA, Korte JJ, Anderson LE, **Wolf DC**, Degitz SJ: Metamorphic inhibition of *Xenopus laevis* by sodium perchlorate: effects on development and thyroid histology. *Environ Toxicol Chem* (in press)
24. Hester SD, Zou F, Barry W, **Wolf DC**: Use of gene profiling to differentiate a carcinogenic from a noncarcinogenic aldehyde in the rat nose. *Toxicol Pathol* (in press)
25. Sun G, Thai SF, Tully DB, Lambert GR, Goetz AK, **Wolf DC**, Dix DJ, Nesnow S: Propiconazole-induced cytochrome P450 gene expression and enzymatic activities in rat and mouse liver. *Tox Lett* (in press).

BIOGRAPHICAL SKETCH**NAME: Valerie Zartarian****POSITION TITLE: Research Environmental Engineer****EDUCATION/TRAINING**

Institution	Degree	Year	Field of Study
Stanford University, Stanford, CA	Ph.D. M.S.	1993-1997 1997-1998	Environmental Engineering and Science
Princeton University, Princeton, NJ	B.S.	1985-1989	Civil Engineering, Water Resources

PROFESSIONAL EXPERIENCE :

Research Environmental Engineer, EPA/ORD/NERL/HEASD 1998-present
 Postdoctoral Research Affiliate, Stanford University, Civil Engineering
 Department, Environmental Engineering and Science Program 1997-1998
 Camp, Dresser, & McKee, Inc., Water Resources Department 1989-1991

SELECTED AWARDS AND HONORS:

Recipient: ORD Honor Award for Exceptional/Outstanding ORD Technical Assistance to the Regions. 2003
 Recipient: ORD/NERL/HEASD/EMRB Superior Accomplishment Recognition Award for sustained high performance during the year. 2003
 Recipient: ORD Honor Award for Exceptional/Outstanding ORD Technical Assistance to the Program Offices. 2002
 Recipient: OPP Superior Accomplishment Recognition Award for applying the SHEDS model to assess children's exposure and dose to arsenic and chromium from CCA-treated wood on playsets and decks. 2002
 Recipient: EPA Bronze Medal for Commendable Service in recognition of outstanding work performed in the area of human exposure and health science. 2001
 Recipient: International Society for Exposure Analysis, Joan Daisey Outstanding Young Scientist Award. 2000
 Recipient: ORD/NERL/HEASD Superior Accomplishment Recognition Team Award for developing the SHEDS model for pesticides under Food Quality Protection Act modeling research. 1999

INVITED LECTURES/SYMPOSIA (Selected presentations from over 50 in the last 5 years):

1. Assessing children's exposures to the wood preservative CCA (chromated copper arsenate) on treated playsets and decks. EPA Science Forum 2004, Washington, DC, June 1-3, 2004.
2. Summary of EPA's Draft Probabilistic Assessment for Children's Exposures to CCA-Treated Wood, Regional Risk Assessors Meeting. May 5, 2004, Boston, MA
3. A Probabilistic Exposure Assessment for Children Who Contact CCA-Treated Playsets and Decks Using the SHEDS-Wood Model. EPA Office of Pesticide Programs FIFRA (Federal Insecticide, Fungicide, Rodenticide Act) Science Advisory Panel Meeting, December 3-5, 2003, Arlington, VA
4. Assessing Children's Exposures to Pesticides: Important Applications of the Stochastic Human Exposure and Dose Simulation (SHEDS) Model. US EPA Science Forum 2003: Partnering to Protect Human Health and the Environment, May 5-7, 2003, Washington, DC

5. Quantifying Aggregate Pesticide Exposure and Dose to Children using a Physically-Based Probabilistic Model. Harvard University, March 24, 2003, Boston, MA
6. A New Tool to Assess Dermal and Multimedia Multipathway Exposures to Environmental Chemicals: EPA/ORD's SHEDS Model and its Role in Improving Risk Assessment and Risk Management Decisions. EPA Office of Solid Waste (OSW), February 6, 2003, Arlington, VA
7. Using the SHEDS Model to Assess Children's Exposure and Dose from Treated Wood Preservatives on Playsets and Residential Decks. EPA Office of Pesticide Programs FIFRA Science Advisory Panel Meeting, August 30, 2002, Arlington, VA
8. EPA/ORD/NERL's Stochastic Human Exposure and Dose Simulation (SHEDS) Model. EPA Office of Pollution Prevention and Toxics (OPPT), Washington, DC, July 15, 2002, Arlington, VA
9. Examples of Key Collaborative Efforts: Pesticide Exposure Modeling," Peer Review of NERL's Human Exposure University Partnerships Agreement Modeling Program, Arlington, VA, July, 2002
10. Overview of EPA/ORD/NERL Pesticide Exposure Modeling Research. Briefing to ORD Assistant Administrator Paul Gilman, NERL Mid-Year Review, June 18, 2002, Research Triangle Park, NC
11. SHEDS-Pesticides: Children's Exposure and Dose to Arsenic and Chromium from CCA-Treated Playsets and Home Decks. briefing to EPA Office of Pollution Prevention and Toxics, Assistant Administrator, April 2002, Washington, DC
12. Overview of the SHEDS Model for Pesticides. EPA Office of Air Quality Planning and Standards (OAQPS), March 21, 2002, Research Triangle Park, NC
13. SHEDS-Pesticides: Model Overview and Scenario Outputs for the Aggregate Residential Model Comparison Workshop. Aggregate Residential Exposure Model Comparison Workshop, October 10-11, 2001, Research Triangle Park, NC
14. Summary of State-of-Science and Practice Regarding Micro-Activity Data. Workshop on Micro/Macro-Activity Data Needs to Improve Multi-Media, Multi-Pathway Exposure/Intake Dose, May 17-18, 2001, Research Triangle Park, NC
15. The Stochastic Human Exposure and Dose Simulation Model for Pesticides (SHEDS-Pesticides): Model Overview and Application, Overview of Human Exposure Research and Scientific Needs under GPRC Goals 3, 4, and 8, EPA NERL, Research Triangle Park, NC, May 10-11, 2000
16. The Stochastic Human Exposure and Dose Simulation Model for Pesticides. Aggregate Exposure Assessment Model Evaluation and Refinement Workshop, International Life Sciences Institute, Health and Environmental Sciences Institute, October 19-21, 1999, Baltimore, MD
17. Status of Advances in Probabilistic Pesticide Exposure and Dose Modeling by ORD/NERL. EPA Office of Pesticide Program's FIFRA (Federal Insecticide, Fungicide, Rodenticide Act) Science Advisory Panel Meeting, September 21, 1999, Arlington, VA
18. Models for Assessing Dermal and Non-Dietary Ingestion Exposure. Johns Hopkins University School of Hygiene and Public Health, Risk Sciences and Public Policy Institute, Case Studies/Special Topics Course, May 12, 1999, Baltimore, MD
19. Human Exposure: Concepts, Definitions, and EPA Research Initiatives. Johns Hopkins University School of Public Health, Environmental Health Engineering Special Studies, A Pilot Course in Exposure Measurement and Assessment, April 9, 1999, Baltimore, MD

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Session Co-Chair, Probabilistic Exposure and Risk Assessment, International Society for Exposure Analysis Conference, Philadelphia, PA (October 2004)

Editorial Board, Journal of Children's Health (2003-present)

Councilor Representing Government Sector, International Society of Exposure Analysis (2002-2005)

- Member, International Life Sciences Institute, Health and Environmental Sciences Institute, Risk Assessment Methodologies Technical Committee (2001-2004)
- Session Co-Chair, Comparison of Aggregate Residential Exposure Models - Parts I and II, International Society for Exposure Analysis Conference, November, 2001, Charleston, SC
- Member, Harmonization of Chemical Exposure Assessment Terminology Workgroup, World Health Organization, International Programme on Chemical Safety, Project on the Harmonization of Approaches to the Assessment of Risk from Exposure to Chemicals (2000-2004)
- Session Co-Chair, Children's Environmental Exposures and Health, International Society for Exposure Analysis Conference, October 2000, Monterey, CA
- Session Rapporteur, Methodological Issues and Model Requirements Session, Aggregate Exposure Assessment Model Evaluation and Refinement Workshop, International Life Sciences Institute, Health and Environmental Sciences Institute, October 19-21, 1999, Baltimore, MD
- Session Co-Chair, Pesticides Exposure and Health, International Society for Exposure Analysis Conference, September, 1999, Athens, Greece
- Session Co-Chair, Modeling Uncertainty and Variation in Time-Varying Exposures, Society for Risk Analysis Conference, December 1999, Atlanta, GA

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY :

- Member, ORD/NCEA Exposure Factors Program Advisory Group, to provide recommendations regarding needs and priorities on exposure factors that will assist in updating the EPA Exposure Factors Handbook
- EPA/ORD/NERL Representative, The Public Health Outcomes Strategy, charged with improving the science that leads to more reliable estimations of the actual reductions in risk that are attributable to risk management actions
- Co-Organizer, EPA/ORD Aggregate Residential Exposure Model Comparison Workshop, Research Triangle Park, NC (October 10-11, 2001)
- Co-Organizer, EPA/ORD Workshop on Micro/Macro-Activity Data Needs to Improve Multi-Media, Multi-Pathway Exposure/Intake Dose, Research Triangle Park, NC (May 17-18, 2001)
- Member, Planning Committee, Children's Health Risk Assessment Workshop on Increasing Uniformity of Exposure Assessments for Children, EPA's Risk Assessment Forum (1999-2000)

PUBLICATIONS (out of 15 total):

1. Zartarian, V., Bahadori, T., McKone, T.E., Feature Article: Adoption of an Official International Society of Exposure Analysis Glossary. **Journal of Exposure Analysis and Environmental Epidemiology**. Accepted for publication.
2. Zartarian, V.G., Xue, J., Özkaynak, H., Dang, W., Glen, G., Smith, L., Stallings, C., Probabilistic Exposure Assessment for Children Who Contact CCA-Treated Playsets and Decks Using the Stochastic Human Exposure and Dose Simulation Model for the Wood Preservative Exposure Scenario (SHEDS-Wood), Draft Preliminary Report, prepared for EPA Office of Pesticide Programs FIFRA (Federal Insecticide, Fungicide, Rodenticide Act) Science Advisory Panel (SAP) meeting, December 3-5, 2003. **EPA/600/X-04/089** (2003)
3. Buck R., Özkaynak H., Xue J., Zartarian V.G., Hammerstrom K.. Modeled Estimates of Chlorpyrifos Exposure and Dose for Minnesota and Arizona NHEXAS Populations. **Journal of Exposure Analysis and Environmental Epidemiology** 11(3): 253-268 (2003).
4. Zartarian V.G., Özkaynak H., Burke J.M., Zufall M.J., Rigas M.L., Furtaw Jr. E.J.. A Modeling Framework For Estimating Children's Residential Exposure and Dose to Chlorpyrifos Via Dermal



Residue Contact and Non-Dietary Ingestion. **Environmental Health Perspectives** 108(6): 505-514 (2004).

5. Cohen Hubal E.A., Sheldon L.S., Burke J.M., McCurdy T.R., Berry M.R., Rigas M.L., Zartarian, V.G., Freeman, N.C.G.. Children's Exposure Assessment: A Review of Factors Influencing Children's Exposure, and the Data Available to Characterize and Assess that Exposure. **Environmental Health Perspectives** 108(6):475-486 (2000).



BIOGRAPHICAL SKETCH

NAME: Harold Zenick

POSITION TITLE:

Associate Director for Health, NHEERL

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
North Texas University, Denton, Texas	B.S.	1968	Psychology/Biology
University of Missouri, Columbia, Missouri	Ph.D.	1972	Physiological Psychology
University of Cincinnati, Ohio	Postdoc.	1978	Toxicology

PROFESSIONAL EXPERIENCE :

Associate Director for Health, NHEERL, ORD, EPA 1995 - Present

Deputy Director, HERL,OHR, ORD, EPA 1989-1995

Acting Chief, Epidemiology Branch, Division of Human Studies, HERL, OHR, ORD 1991-1993

Chief, Reproductive and Developmental Toxicology Branch, Office of Health and Environmental Assessment, ORD, EPA 1988-1989

Reproductive Toxicologist, Reproductive Effects Assessment Group, Office of Health and Environmental Assessment, ORD, EPA 1985-1988

Associate Professor, Department of Environmental Health, University of Cincinnati Medical School 1980-1985

SELECTED AWARDS AND HONORS:

Suzanne Olive National EEO Award for achievements of outstanding civil rights through establishment of the first ever environmental grants program focused on tribal populations, 2003.

Bronze Medal from OIA for superior leadership, 2000

Bronze Medal for Development of Innovative Health Effects Testing Program for Motor Vehicle Fuel and Fuel Additive, 1995

Special Act Award – Forge a Unique Partnership to Address Environmental Health Issues Associated with the U.S. Mexico Border, 1994

Presidential Meritorious Executive Rank Award

Recipient of the ORD Statesmanship Award, 2003



RECENT INVITED LECTURES/SYMPOSIA:

NAS Project “Toxicity Testing and Assessment of Environmental Agents”, Jan. 2005.

Applying an Environmental Public Health Paradigm to Assessing the Potential Impacts of Air Pollution on Older Citizens. Andrew M Geller, Hal Zenick, Annual Meeting of the American Public Health Association, Nov. 2004

National Center for Environmental Research Conference: Next Generation Scientists/Next Opportunities. ORD’s Strategic Workforce Planning: Meeting EPA’s Science Needs Today and Tomorrow, October 2004.

EPA-ILSI International Biomonitoring Workshop “Environmental Public Health Continuum: Systems Biology Approach”, September 2004.

NAS Committee on Toxicity Testing and Assessment of Environmental Agents, Sept., 2004

2004 National Environmental Public Health Tracking Conference “Assessing Public Health Impact of Environmental Decisions Through Information Technology and Research”, March 2004.

CENR Update on NAS Project: Future of Toxicity Testing and Assessment, March 2004.

Presentation to the Board of Scientific Counselors, “Accountability Initiative: Assessing Public Health Impact of Environmental Decisions”. January 2004.

Sixth Annual Conference, Perspective on CDC’s National Human Exposure Report, December 3, 2003

Methodological Challenges to the Use of Environmental Protection Data for Environmental Public Health Tracking, Society for Epidemiologic Research, Atlanta, GA, 2003

ASSISTANCE/LEADERSHIP PROVIDED TO THE SCIENTIFIC COMMUNITY:

Co-Chair, Office of Science, Technology and Policy, Health and Environmental Subcommittee

Co-chair of the Environmental Health Workgroup under the binational US.-Mexico Border 2012 Program.

Member, ATSDR Strategic Planning Committee

Member, External Advisory Committee for NSF Grant-Initiative for Transforming and Sustaining Science, Technology, Engineering and Mathematics (ITSSTEM) at North Carolina Central University (2004-2009)

EPA’s liaison to the National Institute for Environmental Health Sciences Advisory Board

EPA’s liaison to the National Center for Environmental Health/ATSDR Advisory Board

Member, ILSI-HESI Emerging Issues Standing Committee (2004-2005).
Member, American Public Health Association
Member, International Society of Environmental Epidemiology
V.P.-elect, Occupational and Public Health Specialty Section, Society of Toxicology
Associate Editor, Toxicological science (1999-2003)

ASSISTANCE/LEADERSHIP PROVIDED TO THE AGENCY:

EPA's Chair, Health Effects Institute Advisory Board.
Chair, EPA's Toxicity Testing Workgroup and lead fro NRC/NAS project
Chair, EPA's Biomonitoring Workgroup and lead fro NRC/NAS project
ORD's senior executive lead for environmental justice matters
Member, EPA's Human Studies Workgroup